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CHEMISTRY IN THE RUBBER TRADE.

IT is not surprising that in the development of the India-rubber industry in America the chemist has not always been considered of much importance, although the processes of rubber-manufacture are, in large part, purely chemical. From the time of the first knowledge in Europe of India-rubber, some of the most eminent chemists had tried in vain to discover means for making the elastic gum commercially valuable. When the essential discovery of vulcanization was made, it came through the blundering processes of a man ignorant of chemistry—one who arrived at the right idea very much as a tailor might do who cut out a suit of clothes with his eyes shut and happened, for a wonder, to make a good fit. Naturally the rubber trade felt somewhat independent thereafter of the trained chemist.

But guess-work is so much more apt to miss than to hit the mark that the foreign manufacturers who borrowed the industry from us profited in many ways from bringing the chemist to their aid as an adjunct to every rubber-mill. Of late some Americans, borrowing in turn from the other side, have found that it pays to do the same thing. One important field in which the chemist has proved of special value has been in the manipulation of African gums. There are considerably more than a hundred grades of these known in our markets, representing a wide range in quality and characteristics. At the same time the supply of some of these grades has been irregular, entailing a risk on the part of the manufacturer who depended upon them. If a certain grade came to be in good demand it was liable to go up in price, or else to become so badly adulterated as to render it useless. The opportunity for the chemist here was in studying the various grades of African rubber, with a view to showing to manufacturers what grades could best be substituted, one for another, thus rendering the trade less dependent upon fluctuations in price or quality. Without the chemist, formulæ for compounds which had come into use through blind experimenting could not be changed to fit the employment of other grades of rubber, even if only slightly different, without a new and perhaps costly series of guesses, whereas now such changes can be made promptly and with confidence as to the results.

The chemist in such cases has well earned his compensation. The manufacturer has been saved the cost, the annoyance, and the risk to his reputation from blind experimenting; he has profited from the greater stability of prices of African rubbers that has resulted; and he has sometimes been able to use a cheaper grade of rubber than he would once have felt safe in adopting. The crude-rubber trade has also profited from the existence of more accurate knowledge of the various grades of Africans. Already many other classes of goods are sold only on the basis of an expert chemical analysis, and it is not improbable that in the end we shall see crude India-rubber in the same category.

Further than this a chemist of to-day, if he be well fitted, has taken a course in what is known as chemical engineering, that is the pumping of oils, the handling of materials,

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and the arrangement of rooms, appliances, machines, etc. He is a man who will analyze the water used in the boilers, who will take indicator-cards from the engine, and who will, if necessary, put in the proper apparatus for ventilating and for drying. In the line of regular chemical work he will test not only crude rubber but all the materials used, such as whiting, sulphur, leads, zincs, colors, and combinations of them all. It will be in his province to examine reclaimed rubber and pass upon its values; he will test rubber substitutes and not only that but will himself make substitutes and other materials now used in rubber-manufacturing, many of which are secret compounds and for which fancy prices are charged. One rubber-factory used a certain wash the purchase price of which was $25 a barrel. The same thing was manufactured by their chemist for less than half a dollar a barrel. This same chemist, by a mixture of lubricating oils, instead of paying $7 a gallon for a cylinder oil, produced one that cost 21 cents a gallon which was fully as effective.

There are also a great variety of fabrics used which need the same careful scrutiny that rubber compounds need. For example, cloth may have been dyed with a solution of copper salts, and in that case the rubber spread upon it will very naturally have but a short life. Other fabrics contain animal oils and others still vary remarkably in strength. It is within the province of the chemist, therefore, to test the weight, strength, and structure of all fabrics, and the results are always to the advantage of the rubber-manufacturer. Beyond these are the tests of vulcanized rubber goods adapted for special purposes, particularly in the substitution of better or cheaper ingredients.

OUR GROWING EXPORT TRADE.

SOME facts of striking interest and importance on the growth of American export trade appeared in last month's *Engineering Magazine*. First, Mr. Thomas A. Eddy, of the great New York exporting firm of Flint, Eddy & Co., gave some illustrations of what has been going on of late to justify his assertion that "America will probably, in the near future, dominate all the markets of the world in the production of manufactured goods." A few years ago, "carrying coals to Newcastle" was an apt quotation to characterize the height of short-sightedness in commercial matters, but in a progressive age old proverbs, like other ancient things, must give place to change. Now America exports not only coal to London, but iron to Birmingham and cutlery to Sheffield and woolens to Bradford and shoes to Leicester, and no end of other wares to the strongholds of our once invincible competitors in the world's markets.

Naturally such facts have been tardily recognized beyond the Atlantic. Only a few days ago we read in an English trade-journal that "the average American knows no more how to cultivate an export trade than a horse knows of algebra." Not every Englishman, however, is so blinded by a sense of the commanding importance of his own little island to the facts of modern progress elsewhere. Thus Mr. Eddy quotes from the London *Times* a report of a meeting of the council of the London chamber of commerce, where a speaker said:

> Of late years the United States had developed their own resources, and had so stimulated production that they could not only supply themselves, but severely interfere with England in foreign markets; and he would not be surprised if by and by they threatened competition even in this country.

The object of Mr. Eddy's article is to show that this competition with England has already begun. In confirmation of this, the editor of the *Engineering Magazine* has compiled from official sources a statement showing our progress in the export of manufactured articles, from which some examples may be quoted:

	1873.	1884.	1894.
India-rubber goods.....	$ 214,798	$ 635,046	$ 1,461,842
Iron and steel..... ..	11,323,919	21,901,962	29,220,224
Paper and stationery.....	656,248	1,272,810	2,589,912
Agricultural implements	2,585,916	3,442,767	5,027,915

This list might be extended at great length. The lesson of it all, to Mr. Eddy's mind, is that in America inventive skill has been quicker than elsewhere to seize upon mechanical devices to take the place of hand work in manufacturing; that the average productive power of operatives has in consequence been largely increased in this country; and that goods are thereby produced at a lower cost. Americans are thus becoming able to export many lines of staple goods at a profit, in competition with the whole world. All of which leads the London journal, *Machinery*, to remark, in a leading article on the shoe industry:

> In America . . . . . boots and shoes can be made at far less cost per pair than is the case per pair in this country, although our American cousins pay their workmen double as much per week as we do our men for their services.

But the low cost of our goods alone will not sell them abroad. THE INDIA RUBBER WORLD in April, in an article on "Our Consuls and Foreign Trade," pointed out that to obtain foreign orders our manufacturers must send out agents or salesmen, just as they do to get orders at home. The same idea is expressed by Mr. Carl Schurz, in some remarks which follow those of Mr. Eddy in the *Engineering Magazine*, and from him we quote:

> Now, if our young merchants, married or unmarried, devoted a little less time to Fifth avenue, Newport, and Paris, and a little more to Buenos Ayres, Rio, Valparaiso, Shanghai, Zanzibar, and similar places, thus enlarging their mercantile education too, would not that be likely to do our foreign commerce a world of good?

Our conclusion is that the exports of American manufacturers have been increasing of late to a greater extent than most people have been aware of, and that this has been due to intelligent, persistent efforts by a few of our manufacturers, such as have gained for them the lead in agricultural implements in Russia, in sewing-machines nearly everywhere, and in mining machinery in South Africa. We might as well be in the lead in rubber-manufactures abroad, and there can be no doubt that a well-organized syndicate in this interest, somewhat on the lines of that recently organized to sell American leather shoes in England, would soon prove permanently and largely profitable.

RUBBER AND OTHER TOPICS OF INTEREST AT PARÁ.

An Interview with the British Consul.

AMONG the passengers on the *Cametense*, on its last arrival at New York, was Mr. E. Kanthack, of the Pará rubber-house of R. F. Sears & Co, on his way to England to enjoy, for the first time in many years, a complete reunion of his family. Mr. Kanthack, while a Brazilian by birth, was educated in England and spent many years there before making his residence in Pará. He was engaged in the India-rubber trade for seventeen years in Europe prior to forming his present connection. He is now the British consul at Pará, with a special license permitting him to engage in commercial pursuits.

"This is my second visit to New York," said Mr. Kanthack to THE INDIA RUBBER WORLD, "and my first visit in summer. It seems to me warmer than in Pará, though I have not compared the thermometers. Here it is very dry,—so much so that I don't wonder that the people drink so much ice-water,—but you know that in my home it rains on more than 300 days in the year, and it is the excessive moisture in the air that makes the climate so hard for Europeans to bear."

"What is the situation in the India-rubber trade in Pará?"

"When I left Pará it seemed probable that the receipts for the crop year just closing would be 100 or 200 tons lighter than last year. This is something unusual, for with the exception of a single season, five or six years ago, there has always been, so far as I know, a yearly increase in the production of rubber. This falling-off has been due chiefly, I believe, to the great mortality on the river Javary, where it is reported that about 4000 persons have died of malarial fevers. Not only was the product from this river reduced at least a third, but the reports of such mortality intimidated people more or less from working in other quarters. This was an unusual case, but wherever a new district is opened there is certain to be trouble from fevers, just as was true, I believe, when the valleys, of your own western rivers were first settled."

"Do you regard this shortage in the rubber crop as only temporary?"

"Oh, yes. The world's demand for Pará rubber is growing steadily, nothwithstanding the increased output of African rubber and the improvement in its quality. I do not think that an increase of 1000 tons of Pará rubber year by year would be too great. There remain many uses for which only the Pará grades are suited, and as the demand in these lines grows, increased efforts must be made to get labor for gathering the rubber. There is no decline in the supply of rubber in Brazil; on the contrary, the greater part of the rubber forests have not yet been touched. The only trouble is with regard to labor. No European laborers who have yet been introduced can withstand the Brazilian forest life. The main dependence must be upon the 'Brazils'—who have sprung from the union of the early Portuguese settlers with the aborigines,—though something has been done towards getting the Indians to work in rubber. Neither of these classes would be regarded elsewhere as efficient laborers, *but they don't die.* Besides these native laborers in the rubber states, many others come north from Maranham, Ceara, and Piauhy. They work for one or more seasons, saving some money, which they take home to live on in comparative idleness until it is used up."

"What about new sources of rubber?"

"Rubber is being found continually in new districts in Brazil, and also in Peru. There is fine rubber on all the navigable affluents of the Amazon in Peru, with the exception, perhaps, of the Huallagua. The valley of the Ucayali is especially rich in rubber. There is this advantage in Peru, that fine rubber [*Hevea*] and 'caucho' are found in the same districts, which prolongs the rubber-gathering season in this way: The fine rubber abounds in the low lands, along the streams, and is best gathered in the dry season, while later, when the forests become inundated, the gatherers can retreat to the higher lands and gather 'caucho.' While the output of Peruvian rubber is increasing, that from Bolivia has remained stationary of late. It requires thirty days at best for a cargo of rubber to reach Pará via the Madeira, from the nearest Bolivian station, while shipments of merchandise upstream often consume sixty-four days. As rubber can be shipped only as there is merchandise to be exchanged for it, you see what an obstacle there is to developing this trade. Another obstacle is the presence of unfriendly Indians along some of the Bolivian streams."

"What about improving means of communication in the rubber states?"

"The situation with regard to interior and coastwise shipping remains unchanged. It has been attempted, by means of legislation, to confine this shipping to the Brazilian flag, but on account of the lack of sufficient native capital and enterprise to establish new lines of steamers, the enforcement of the new navigation laws has been postponed from time to time. Otherwise, the settlements at many points would have been shut off from supplies from the outside world. The Amazon Steam Navigation Co., Limited, therefore remain the most important shipping company in Brazilian waters and on the seacoast, and they have been extending their facilities. I believe that the Pará-Manáos submarine cable, which has received governmental sanction, will be built in time, and when that happens Manáos cannot fail to absorb a share of the rubber business now conducted at Pará."

"What attention does the local press give to the subject of rubber?"

"The newspapers merely report the arrivals and the quotations. Only at long intervals is there an article on the rubber interest. There has lately been printed, by the way, a valuable pamphlet on rubber by Senhor Pedro

da Cunha, the administrator of finance for the state of Pará, who has taken great interest in the development of the industry, in the hope that some benefit will follow. He has done much to improve the system of government statistics. I may add that I have read with much interest the Pará correspondence of THE INDIA RUBBER WORLD."

Mr. Kanthack was unable to engage passage for Liverpool at New York, owing to the crowded condition of all the steamers leaving New York, and so was obliged to proceed to Montreal, whence he sailed by the *Parisian* on June 22.

Mr. R. F. Sears is in Pará, where he arrived on May 29, and will remain in charge of the business of the firm during the absence of Mr. Kanthack.

INDIA-RUBBER AS AN AGENT OF CIVILIZATION.

By Gustav Heinsohn.

A RECENT contributor to THE WORLD headed an article "India-rubber in War and Diplomacy," and proceeded to prove the value of the elastic gum by the amount of fighting for which it was responsible. But when a thing becomes important enough to go to war over it has only reached its first stage toward becoming of value to the world as a factor in peaceful commercial and other advancement. India-rubber, however, has already proved its importance—being a valuable commercial product—as an incentive to geographical exploration and the pushing of commerce to the remotest parts of the globe. We may now expect the demand for this article to prove a basis for the continued development of many states which are already enjoying peace and the promise of political stability.

India-rubber was the key that unlocked to commerce the world's greatest river—the Amazon—and brought into existence the extensive fleet of steamers which now reaches every navigable affluent of that unrivaled water-course. Other interior products now seek an outlet through the Amazon, but India-rubber was and is the most important; it still yields the greatest revenues to the state and municipality, and is the basis of the growing wealth and improvement of the cities of Pará and Manáos. India-rubber is the cause of the efforts of Bolivia to improve her water-routes to the Atlantic and to secure a shipping-port on the Pacific, connecting with the steamer service on Lake Titicaca.

More recent than the experience of those states is the rapid development of an interest in Africa, which has been the outgrowth, to no small extent, of the India-rubber industry. So long as the slave traffic flourished in Central Africa, other possible sources of wealth—with the exception of ivory—were overlooked. But the practical stoppage of slave-trading left in Africa the whole equipment of the traders, representing a large investment of capital, and not always transferable except at a loss. Consequently attention began to be turned to possible new sources of wealth. Nothing could be brought from very far inland except articles of large value per pound, on account of the expensive porterage. Excepting ivory there was nothing available but India-rubber, but this was enough to start with. The first African rubber to reach the markets met a discouraging reception, but perseverance has had its reward, and Africa doubtless will ere long rival Brazil in the amount of its rubber product. Likewise the exploration of Burma, still little known to white men, and of the jungle of Borneo, is proceeding under the stimulus offered by the existence in them of India-rubber.

Can too much India-rubber be discovered? No. The demand in sight can never be supplied from all the rubber forests on the globe. And when every vehicle-wheel has been rubber tired, and every floor-surface in a public place has been rubber-tiled, and every possible noise and vibration, however caused, has been lessened by the use of India-rubber, we may depend upon it that inventive talent will develop new needs for the gum. There is no more reason why India-rubber should go out of use—nor that the supply should become exhausted—than wood or leather or tea or tobacco or iron. It needs only a steady cheapening in price to extend its use indefinitely. And this is what is coming. Not cheaper rubber through the discovery of new sources—for they can all be traced on the maps now—but cheaper rubber through closer-settled populations, systematized labor, and the cultivation of rubber-trees.

Readers of THE INDIA RUBBER WORLD know about the rubber-paths which the gatherers in the Amazon valley cut out with much labor through the forest from one *Hevea* tree to another, half a day being consumed in reaching a hundred trees, after the path has been cut. Why not have them all *Hevea* trees, along all the streams where these trees grow naturally? Then a thousand of them might be reached as easily as a hundred to-day. The advantages of such a condition are described thus in a pamphlet on India-rubber by one Senhor da Cunha, published by the government of Pará:

> It may be admitted, without exaggeration, that a cultivated rubber forest yields 50 per cent. more than one in a natural state. . . . Besides, the labor will be easier, and the laborers will not run so much risk. Working continually within reach of the house, hygienic regulations can easily be observed, and cases of sickness will not suffer by delay in treatment. Also the master will easily control his employés.

As for a settled population in Brazil, why should the rubber-gatherers go up and down the Amazon with every crop season, drawing their supplies from Pará? As well might the wheat-growers of Minnesota make their homes in New Orleans, going up the Mississippi only in the crop periods. Later the land laws of Brazil may be depended upon to offer more encouragement for the settling of lands, after which the rubber gatherers will cultivate their own food, begin rubber cultivation, and become more independent and better citizens. What if time should be needed for the rubber-trees to grow? Does any such objection

prevent the growth of cocoanuts or oranges? How many apple-trees, even, bear plentifully in their first year?

The vital question, however, is whether outsiders can live in the rubber-growing countries. Not every one, of course. But there can be no doubt that the Anglo-Saxon race will yet accommodate itself to every quarter of the globe where a productive industry is possible. Who shall so limit sanitary science that it will not enable man to live in any country which he may prefer? Look at the wide range of climate in our own United States, and remember the unfavorable conditions for health which the first settlers found at so many points; yet the British Islanders have adapted themselves to every one of our states. And they are thriving in Canada, in the West Indies and the East Indies, and wherever they have chosen to settle in Africa. Nor are the Germans who have settled in the rubber provinces of Peru and Bolivia complaining on the score of health.

An early contributor to THE INDIA RUBBER WORLD wrote that when, in 1850, he first thought of visiting Pará, he was warned against it, because it was the "yellow-fever season." He said that he was glad afterwards that he postponed his visit, for one half the population died that season. Now it is claimed that the death-rate of Pará is no higher than that of London. We who have seen the purification of such a yellow-fever nest as Memphis, in the United States, and who remember the scourges of Asiatic cholera which used to encircle the globe but now do so no more, ought to appreciate the possibility of making the Amazon valley and the Kongo basin habitable by civilized races. When the density of population in the United States has given a check to immigration, new opportunities will inevitably be sought and found in South America and Central Africa.

There need never be a fear of a scarcity of India-rubber because of the inability of civilized man to live in the rubber countries. On the other hand, India-rubber, because its growth is limited by nature between certain lines of latitude, is bound to attract workers and traders and directors and capitalists to those regions in increasing numbers, until the "rubber-growing states" will have a civilization comparable with that of the "wheat-growing" or "cotton-growing" states with which we are familiar in our own and other countries.

What has been outlined above is enough, I think, to justify my choice of a title for this paper, without proceeding to discuss the results to civilization of the uses of India-rubber which science has taught us.

JOHN BERTRAM AND THE SALEM RUBBER TRADE.

NO history of the India-rubber trade in the United States would be complete without some account of John Bertram, the millionaire merchant and philanthropist of earlier days in Salem, Massachusetts. It was at the zenith of the commercial greatness of this ancient town that the importation of India-rubber into this country was begun by some of her shipmasters, and Captain Bertram played an important part in this, as in every other branch of the shipping business half a century ago. The English company under whose auspices Salem was settled was originally intended—like the East India and other companies of the kind—for trade and colonization. It may be added that the story of the commercial successes of Salem town does not suffer by comparison even with that of the great company chartered by Elizabeth. Salem's ships led the way from the United States around the Cape of Good Hope to Mauritius and India and China; her vessels were the first from this country to display the American flag and open trade with St. Petersburg and Zanzibar and Sumatra, with Calcutta and Bombay, with Batavia and Arabia, with Madagascar and Australia. No other American city can point to so brilliant a record in ocean shipping. "TO THE FURTHEST PORT OF THE RICH EAST," which is yet the motto on her city seal, voiced the one-time controlling ambition of the people of Salem. How wealth was accumulated under the old régime is illustrated by the fact that the fortune of Richard Derby, a shipping-merchant of Salem who died in 1799, was the largest that had ever been left by an American to his heirs.

It was into this community that John Bertram was brought, from his native Isle of Jersey, in 1807, at the age of eleven years. His father had other plans for him, but the continual sight at the wharves of the shipping of all lands fired his young heart with a longing for the sea—the grand passion of the Salem boys of that day. In 1812, when only sixteen years old, John Bertram sailed as a cabin-boy, at $5 a month, and was constantly at sea for twenty years—but most of the time as a ship-captain and owner—after which he continued to be interested in shipping to the end of a long and prosperous life. It was due to him, in fact, that many bright pages of the record of Salem, above referred to, came into existence. In September, 1815, Bertram sailed for South America on a brig which landed, before her return, at Pará, and returned to Salem in the following April. Then he was away to St. Petersburg, Sumatra, Mozambique, and elsewhere, not seeing the Brazilian coast again until 1824. But there was constant commercial intercourse between Salem and the ports of South America on the Atlantic side, and in time Captain Bertram was an active figure in it. Pará was for a long time the most important port in this trade, there having been 435 arrivals at Salem from that port between 1820 and 1860. The largest number of arrivals in a single year was in 1853, when twenty vessels entered.

The date of the arrival of the first specimen of Pará rubber at Salem is uncertain. There is a record of the bringing home of some of the primitive rubber shoes by Captain Benjamin Upton, a member of a notable family of shipping merchants. The regular importation of these articles, and of India-rubber in the shape of bottles, soon grew up in the hands of Captain Upton and his brother Robert, of Thomas P. Pingree, but especially of the firm of Bertram & Curwen. The custom-house records at Salem show that the brig *Rattler*, from Pará, entered at Salem in July, 1846, consigned to John Bertram, afterward making a number of voyages. Another vessel in the Pará trade consigned to John Bertram was the brig *M. Shepard*, which entered in March, 1853, and continued for some time afterwards to make trips regularly. But it is not intended here to give a full record of this trade.

At the same time Captain Bertram became a pioneer in the San Francisco trade, immediately following the discovery of gold in 1848, and some of the clipper ships which he built for

the Pacific excited the wonder of the maritime world. Later he confined his shipping interests to the Zanzibar trade, and devoted his attention largely and with success to railroad development.

THE INDIA RUBBER WORLD has already told* how Bertram & Curwen sent out lasts to the native rubber-gatherers as an improvement on the clay molds previously used for making rubber shoes on the Amazon, and how they later established at Pará a factory for rubber shoes which was not successful long after Goodyear's discoveries came into use. There has also been published† a sketch of the late James Barr Curwen, who was at times associated with Captain Bertram in the Pará and other branches of trade. In still another issue the statement appears that in 1850 there were but four importers of India-rubber in the United States—John Bertram and Thomas P. Pingree, of Salem, and H. K. Corning and James Bishop & Co., of New York. The largest of these importers at one time was the one first named. The period of the heaviest importations at Salem was between 1850 and 1854. The last entry there from Pará was in 1861. The civil war was beginning then, and from that period dates the decadence of Salem's shipping interests.

CAPTAIN JOHN BERTRAM OF SALEM.

John Bertram lived until March 22, 1882. He left an estate of several millions, but it had accumulated in spite of his notable liberality. His public benefactions were munificent. His gifts to the Salem Hospital, his establishment of the Bertram Home for Aged Men, his legacy to the Children's Friend's Society, his Fuel Fund kept in trust by the city, his contributions during the war—and since the war—in the interests of the soldiers, his liberal donations for the education of the freedmen, his other benefactions, too numerous for recital here, all bear witness to his charitable disposition. His connection with public affairs was brief, being confined principally to his service in the legislature for three years. In 1884 Captain Bertram was honored by the city of Salem with a public memorial—such as had previously been bestowed upon Endicott, the governor; Bowditch, the navigator; Story, the jurist; and Hawthorne, the novelist.

This sketch may fittingly end with an extract from one of his diaries, found after his death:

"It will be natural for persons to inquire how, from a poor boy, I became rich. Many reasons I could give.

"1. I gave my mind and energy to everything I undertook.

"2. I was very economical but never mean.

"3. I used a great deal of self denial, never going on pleasure for the sake of it; and I always kept respectable company.

"4. Never using to this day either liquor or tobacco in any form; and only a little wine, daily, for these three years, by the advice of my doctor. This had a great deal to do with my prosperity, not only by great saving, but it insured business, which was of great importance, as I had neither relative nor friend of the least importance, and only such of the last as I made by my course through life.

"5. Although I never learned to spend money, this did not deter me from giving to the needy, nor to good objects."

BRIEF ABSTRACTS OF RECENT RUBBER PATENTS.

AMONG recent patents issued by the United States Patent Office, embodying applications of India-rubber or Gutta-percha to a greater or less extent, have been the following. It is not practicable here to do more than to note the use of rubber in each case, with sufficient detail to enable those who are interested to decide whether or not to look into any particular patent more fully:

TIRES.

No. 539,224.—Fabric. Rudolph W. Huss, Cleveland, Ohio, assignor to Henry A. Lozier, same place.

A fabric made of vulcanized elastic and impervious material having imbedded and vulcanized therein substantially parallel fibrous and non-extensible threads.

No. 539,263.—Pneumatic Tire. Charles H. Guest, Birmingham, Eng.

The combination with a concave wheel rim, of a tire jacket having a tubular edge and a securing wire consisting of a plurality of convolutions, the ends of the wire lying within the rim, and a pneumatic tube lying within the rim, adapted upon inflation to engage the ends of the wire and hold it firmly in position.

No. 539,353.—Pneumatic Tire. Percy L. Clark and Ernest W. Young, Chicago, Ill.

The method of making pneumatic tires, which consists in forming an endless band of bias fabric without seams or laps, stretching the same onto a mandrel of greater circumference than such endless band, suitably laying the fabric to the mandrel and applying rubber thereto and vulcanizing the same on the mandrel.

No. 539,586.—Pneumatic Tire. Adam A. Long, Rochester, N. Y.

In a pneumatic tire, a recessed felly, an inflation tube or a tire having a rib formed to rest in the recess in the felly, a transversely movable clamping plate or band extending around the felly whereby the rib is clamped within the recess and to the felly, and positive mechanism attached to the felly for positively moving the whole of the band at the same time both to clamp and to release the rib.

No. 539,826.—Rubber Tire. James G. Rogers, Springfield, Ohio.

The combination in a rubber tire, made in two parts of an inner grooved bed or cushioned part, confined within and conforming to the shape of the flanged rim, and the outer, wearing

* November 15, 1893.
† April 15, 1894.

part, of rubber, lying in the groove of and surrounding the inner part, and the flat, metallic core, for the outer part, provided with the slits or notches for uniting the ends.

No. 540,478.—Wheel for Cycles. Pierre Ambjorn Comte de Sparre, Paris, France.

The combination with a tire of a trapezoidal or equivalent cross-section, the greater base or interior wall of which is covered by one or more thicknesses of strong cloth, of a corresponding rim, the cross-section of which shows a concave middle portion, bordered by two flat portions upon which rests the tire, and two lateral flanges.

No. 540,519.—Automatic Tire-Inflater. Phillip W. Stanford, New York, N. Y.

In combination with the rim and pneumatic tire of a wheel, an automatic inflator for the tire consisting of a cylinder flexibly mounted on the wheel whereby it may yield under an unequal strain imposed upon its piston rod, the cylinder having a head with an inlet passage through it, a spring actuated valve in the head, a piston having an interior chamber provided with a spring actuated valve, and a port controlled by the valve, a hollow piston rod communicating with the chamber of the head, and extending into the pneumatic tire and having a vent communicating with its interior, the outer end of the piston bearing against the inner surface of the outer wall of the tire, whereby by the compression of the tire against the ground the piston rod and the piston are raised, means for adjusting the piston rod to regulate the degree of tire expansion, and a spring within the cylinder for returning the piston.

DRUGGISTS' SUNDRIES.

No. 539,429.—Bottle-Stopper. Charles Huch, Hoboken, N. J.

A bottle stopper composed of a porcelain plug, having a peripheral groove and a tapped axial perforation that extends partially through the plug, a rubber gasket received within the groove and a bent spring wire having a threaded end that is received within the tapped perforation.

No. 539,961.—Atomizer. Sterne Russell, Naugatuck, Conn.

In an atomizer, an atomizing tube having a single conduit therethrough, a core located in the forward end of the atomizing tube, the core being provided with one or more spiral grooves in its surface, a centrally perforated cap at the forward end of the atomizing tube, with a supply tube adapted to conduct the liquid from the interior of the receptacle to the atomizing tube, and with means for forcing the liquid through the supply and atomizing tubes.

No. 540,064.—Nipple for Nursing-Bottles. Samuel R. King, Providence, R. I.

In a nursing bottle, the combination with the neck of the bottle provided at its ends with an annular projection, of a metal nipple, having thin rigid walls, provided at its base with an outwardly-projecting flange, and the elastic band adapted to secure the nipple to the bottle.

No. 540,213.—Syringe. John H. Morrison, Salida, Colo., Georgia A. Morrison executrix of said John H. Morrison, deceased.

An attachment for syringes, consisting of a substantially conical chamber having a flexible wall and provided with a lengthwise passage therethrough for receiving the main tube of a syringe, and having an inlet opening in its reduced end, and an outlet opening in its opposite end, and a conical flange or shoulder extending from the outer edge of the opposite end of the chamber and forming a continuation of the outer longitudinal wall of the conical chamber for protecting the adjacent parts of the user.

No. 540,521.—Bottle Stopper and Feed. William S. Swan, Maumee, Ohio.

The combination of a tubular stopper of rubber having an air chamber formed at its upper portion, and an elastic centrally perforated diaphragm arranged over the air chamber, a depressible funnel arranged over the diaphragm and adapted to be upheld normally by the elasticity thereof, a funnel tube connected to the funnel and passing through the central perforation in the diaphragm and also through the central opening of the tubular stopper, two projecting flanges formed around the upper part of the funnel tube and adapted to embrace the edges of the elastic diaphragm between them and the sleeve of hard material, the internal diameter of which is larger than the diameter of the funnel tube, whereby an air passage is left therebetween, the sleeve being arranged in the central opening of the tubular stopper with its upper end in position to be engaged by the lowermost flange on the funnel tube when the funnel is depressed, whereby it is stopped against excessive movement.

BOOTS AND SHOES.

No. 539,329.—Overshoe-Fastener. Wakefield C. Arnold, Columbus, Ohio, assignor to himself and Schuyler Hall, Somerset, Ky.

In an overshoe fastener, the combination with a blanket plate adapted to loosely embrace a locking dog having two bent wings, the bracket plate having a forwardly bent tongue on its upper edge, of a spring locking dog the rear limb of which is serially perforated to receive the tongue of the bracket plate, and a reinforcing spring secured to the bracket plate and pressing on the lower portion of the dog.

No. 539,361.—Device for Holding Overshoes in Place. Ira Good, Elgin, Ill.

The combination with a shoe, of a securing device for overshoes, consisting of a rod adapted to fit along the rear portion of the shoe, having a spring catch at the upper end outwardly curved, inwardly flanged arms at the lower end and straps secured to the forward ends of the arms, by means of which they are secured in place.

No. 539,843.—Detachable Rubber Heel. Thomas J. Williams, Kountze, Tex.

A detachable rubber heel tap adapted to fit heels of varying size having a divided breast, a raised flange terminating upon each side of the division, and a steel spring secured to the flange and adapted to grasp the sides and breast of the heel.

RUBBER MACHINERY.

No. 539,660.—Machine for Making Dress-Shields. Emil Barsuck, College Point, N. Y.

A machine for making dress-shields, comprising a female die, a series of housings on the sides of the die, pins fitted to slide in the housings and adapted to pass through openings therein to engage the sides of the fabric passing between the housings, and means for moving the pins on each side simultaneously into or out of the contact with the material.

No. 540,043.—Roll for Machines for working Rubber, &c. Frank H. Brewster, Derby, Conn., assignor to the Birmingham Iron Foundry, same place.

A roll for machines for working rubber, gutta-percha, paper, cloth, etc., the said roll being provided with trunnions and having a large interior chamber, and reinforced by one or more reinforces cast into it, and standing at a right angle to its longitudinal axis, and also reinforced by ribs formed integral with the wall of the chamber, and projecting inwardly thereinto.

No. 540,269.—Roll for Rubber-Mixing Mills. Webster Norris, Melrose, assignor to the Boston Rubber Shoe Company, Boston, and Malden, Mass.

An improved rubber-mixing mill roll, comprising the thin shell a tubular longitudinal hub, radial longitudinal partitions extending from hub to shell, the ends of the partitions being at a short distance inward from the ends of the chamber produced by the hollow roll, whereby intermediate chambers are produced, an inlet tube leading to the first intermediate chamber and an outlet tube connecting with the second intermediate chamber through the tubular hub.

MISCELLANEOUS.

No. 539,098.—Horseshoe Pad. John Sweeney, New York, N. Y.

A horseshoe pad composed of a plate and a rubber heel secured thereto, the heel having notches that extend back of its

inner edge adapted to receive the heels of the shoe, and to leave open recesses between the heels and the rubber heel of the pad.

No. 539,307.—Saddle-Pad. Frederic W. Wall, Fort Worth, Tex.

A pad for saddles, consisting of two pads, combined with a tube, provided a mouth-piece for inflating both pads at once, and the ventilating tubes which extend through the pads; both pads being made of an outside covering of rubber, a canvas bag placed inside of the rubber, and a lining of rubber inside of the bag.

No. 539,355.—Cushion Stamp. John F. Cooke, Omaha, Nebr.

In a hand stamp, the combination with a suitable base, of an elastic cushion, the cushion being provided with two or more series of open ended passages, so arranged that the openings of one series are positioned at points between the openings of the adjoining series.

No. 539,665.—Cushioned Horseshoe. Michael J. Cadden, Terre Haute, Ind., assignor of one-half to Ralph M. Suratt, same place.

A horseshoe made up of a plate of metal having depending sides to form a dove-tail recess, prongs or projections struck up from the central portion of the metal shoe, the prongs being of greater length than the depending sides of the shoe, and a rubber or elastic cushion or tread surface tapered in cross-section and adapted to fit within the recessed shoe and project below the sides thereof, the prongs extending through the rubber cushion and bent over the same to retain the cushion securely in place.

No. 539,709.—Harness-Pad. James T. Short, Louisville, Ky.

The combination with an outer casing and facing connected together at the edges to constitute two bags which open at a common central point, of an inflatable bag the ends of which enter and are removably secured in this bag.

INDIA-RUBBER IN BRITISH INDIA.

ONE of the lesser staples of Indian exports, the trade in which suffers to a regrettable extent from inferiority of quality, due for the most part to preventible carelessness in collection and preparation for the market, is India-rubber from the *Ficus elastica*. This useful substance, says the Calcutta *Capital*, is the subject of one of the "Hand-books of Commercial Products," published chiefly with the object of drawing attention to the mercantile importance of the rubber tracts of Burmah and Assam. From the facts and information collected it seems fairly reasonable to conclude that if it were found practicable to induce or enforce—according to circumstances—a wider adoption of improved methods, more care and attention in the extraction of the caoutchouc, and less wanton destructiveness in the tapping of trees, the industry might be made much more profitable to those connected with it, and the value of the trade to the country considerably enhanced.

The quality of Indian caoutchouc, it is believed, is not intrinsically inferior to that of other countries, the relatively low price it fetches being attributed simply to the impure state in which it is placed on the market, the extraneous matter consisting of bark, wood, stones, sand, and dirt. At least such was the expression of opinion embodied in the annual report by the Collector of Sea Customs, Calcutta, while commenting on the decline in the export of India-rubber from Bengal in 1887-1888. But although the foreign trade from that presidency in the succeeding five years fell further by as much as 33 per cent. in value, shipments from Burmah, on the other hand, more than proportionately increased, viz., by 57 per cent. Up to the 31st October of the current year, the total exports from British India show a slight excess quantitatively over those in the corresponding period of the two preceding years, although values are recorded as a shade lower.

With regard to the history of caoutchouc from the *Ficus elastica*, the earliest accounts of it were derived from the late Dr. Roxburg, who identified it in a vessel containing some honey sent him as a present from Sylhet, the rubber being used to line the dish. This happened towards the close of 1810; but it was not until 1873 that the first commencement of the existing Charduar rubber plantation in Assam (which has since been regularly extended) was made, with the view of providing for future supplies. The commodity is now the most valuable of the minor forest products of that province. The trade in Upper Burmah was originally brought to the notice of government in 1873, when the monopoly was leased by the old Burmese king to certain Chinese firms, as in the case of earth-oil (crude petroleum), the people of the country themselves being far too indolent and fond of a *dolce far niente* existence to engage in any interprise of the kind. After the fall of Mandalay, we continued the monopoly system up to October, 1888, the license being sold for a lakh of rupees. The trade was then thrown open, but a license duty of 8 annas per viss (3.65 lbs.) was levied at Bhamo.

Amongst other causes that tend to restrict the production of rubber, both in Assam and Burmah, not the least is the difficulty attending the propagation of *Ficus elastica*, which requires a considerable amount of care and attention—a condition utterly incompatible with the irredeemably lazy habits of the Burman and Assamese alike. Again, the operation of tapping appears to be for the most part conducted in a highly wasteful manner. Thus one writer records, with reference to the industry, "no mercy is shown to the trees, all of which (at least those that I saw) suffer severely; many, I was assured, are killed outright." There is little doubt, too, that, no matter how carefully conducted, continuous tapping year after year will prove fatal to the trees. As regards tapping in Burmah the Kachins seem to follow a much less prodigal system, having been shrewd enough to learn the lesson of unlimited extraction. In the amber mines district, on the other hand, the reverse is the case, especially near Luban, and the easier export routes, where the trees are stated to be almost valueless, having been completely exhausted. Still, the rubber resources in other parts of these tracts are capable of meeting the demand, and, although the distances over which supplies have to be transported are yearly stretching out, there seems to be no fear of an early failure of the trade. In fact, from a recent report by Mr. O'Bryen, Assistant Conservator of Forests, on the trade of the Magoung Sub-division of the Bhamo district, we learn that, according to what that officer could gather, "the area worked, so far, is very small compared with the total available, as the rubber tree is said to extend 400 or 500 miles north of Kamaing, both east and west." In a further note, Mr. O'Bryen states, however, that "the more remote districts are protected purely and simply by their remoteness, and, as the exploitation is being pushed further and further every year, these tracts will tend to become exhausted as the demand increases." In the amber mines, unfortunately, there are no means for enforcing the rules extant in the province, which, if acted up to, are capable of affording a fairly adequate measure of protection.

In the Progress Report of Forest Administration in Assam, 1891-92, mention is made of numerous complaints regarding the

waning production of the Assam forests in rubber—a decline which it was represented was partly owing to the improvidence of the workmen employed by contractors and their agents, and partly to the unprotected and inaccessible situation of the rubber-producing areas, which enable adjacent hill tribes to illicitly tap the trees and import the rubber into Assam duty free as "foreign produce." Various suggestions were made as to how best to put a stop to this raiding of the rubber forest, and finally certain rules were issued by the Chief Commissioner of Assam in 1892. These provide, *inter alia*, for a duty at the rate of Rs. 12 per maund on all rubber extracted from trees growing on land at the disposal of Government and leviable at the first revenue station. This being the same rate of duty imposed in Burma, the temptation to import thence into Assam (as foreign production) no longer exists. Certain restrictions were also laid down as to the method of tapping, and it was provided that that operation should be confined to the months of December to March only. Further, the extraction, collection and removal of India-rubber in Assam can only be done now under and subject to the conditions of an "India-rubber collecting license," granted by the local Government, Deputy Commissioner, the Forest Officer in charge of a division, or other Forest Officers appointed in this behalf. Again, the purchase of rubber is forbidden, save under an "India rubber purchase of license." Heavy fines are inflicted for breach of the various rules, so that altogether the poaching for rubber has now probably become a game hardly worth the candle.—*The Indian and Eastern Engineer.*

THE INDIA-RUBBER INDUSTRY IN EUROPE.

THE board of directors of the Hanover Rubber Comb Co. report that the hopes entertained at the last general meeting have been realized. The business transactions in the past year have been considerably larger than in the preceding year. The improvements and additions in machinery and plant commenced last year are nearing completion. The profit-and-loss account embraces the cost of repairs and improvements, the amount paid for a patent bought late in 1894, and the losses on accounts outstanding. From these accounts, where they were not bank accounts, the board has, as formerly, deducted 3 per cent., and, on account of the increase of this account, raised the security account from 25,000 to 50,000 marks. The balance-sheet shows profits of 378,068 marks, of which 36,525 marks will be used in the credit account, leaving a net profit of 341,543 marks. The dividend to be declared, it is expected, will be 21 per cent.

* * *

THE annual report for 1894-95 of the Cologne Rubber Thread Factory (formerly Ferd. Kohlstadt & Co.) shows that the result for the year, as a whole, has been better than the one for the previous year. The prices of raw material during the year have been mostly steady, advancing slowly, during the latter months. Sales were rather slow, but at the same time sufficient to carry on a steady business. It was next to impossible to obtain prices proportionate to the rise in raw material, and the situation was made worse by reductions in price made by foreign competitors. Inasmuch as the company's dividends are to be shared by a capital of 1,080,000 marks (instead of 1,200,000 marks, as formerly), a dividend of 5¼ per cent. per share, payable June 1, was declared. The dividend last year was 4½ per cent. The financial condition of the company is admirable; scarcely any creditors exist. After writing off 54.277 marks, the net profit remains 73,119 marks, as against 66,613 marks last year. The division is as follows: Dividends, 59,400 marks; profit-sharing and rewards, 10,064 marks; sinking-fund, 3655 marks.

* * *

WITH the Saxony-Bohemia Rubber Goods Factories Stock Company, the year 1894 closed with a net gain of 19,552 marks, reducing the deficit to 99,639. The sales during the year increased considerably in both factories, but the rising prices of crude India-rubber and the decline in the price of products, as well as the expense of introducing the "Imperial" bicycle-tire, prevented the expected increase in profits. The outlook for 1895 is favorable, inasmuch as large orders have been taken. The expense account and working capital had to be increased in order to keep up with the orders; the percentage of expenses in comparison with the sales is more favorable than last year. As regards the financial condition, a loan is contemplated, to be secured by mortgage; in the past the necessary finances have been furnished by the company's bank on favorable terms. The company are cheered by the business outlook for the current year.

* * *

THE general meeting of the United Berlin-Frankfort Rubber Goods Factories approved the business report and balance-sheet for 1894 and fixed the dividends at 8 per cent. The meeting then resolved, in accordance with the recommendation of the board of managers, to call in the 5-per-cent. partial obligations, amounting to 325,000 marks, which are now in circulation, and secure a new loan of 750,000 marks. The terms were left entirely to the board of managers.

* * *

DURING the discussions on the German-Japanese customs-treaty, in the Reichstag building at Berlin, the India-rubber industry was represented by directors of three important manufacturing companies—Herren Seligmann, Hoffmann, and Warmuth.

* * *

THE English concern, W. T. Henley's Telegraph Works Co., Limited, have added to their facilities an extensive mechanical-rubber department, at North Woolwich, and expect shortly to offer to the trade a wide range of new products. Among other things they are preparing to manufacture a golf-ball—the "Henley"—which will be nicked in a novel manner.

* * *

"PEKIN" waterproof cloaks, for the oriental market, illustrated in the price-lists of the Victoria Rubber Co. (Edinburgh), are unlike any products of American factories. In shape they suggest the silken blouses worn by Chinamen, except that there are no sleeves. The "Pekin" is formed by two pieces—one being a circular piece covering the shoulders and the other falling straight down from it on all sides. It has a very narrow collar and fastens with six buttons down the front.

* * *

THE North British Rubber Co. (Edinburgh) were well represented at the second International Shoe and Leather Fair, held lately at the Agricultural hall, London. They showed snow-boots, fishing-boots, mining-boots, and deck-boots; special forms of shoes for gymnastic use, lawn-tennis, and golf; and

a novelty in the way of a ventilated field boot, which attracted favorable notice.

* * *

AN action was brought by Reid & Glasgow, corn-merchants of Liverpool, against Kramrisch & Co., India-rubber merchants, for damage to flour caused by a nuisance due to the storage of African rubber by the defendants in the same building with the flour. Kramrisch & Co., admitted that the damage was due to the India-rubber, but denied that they were responsible; they had leased storage-room with the understanding that it was suited to their business, but they had given no thought to the business of others hiring room there. The jury awarded a verdict for the plaintiff in the amount of $350—the loss claimed through the depreciation in the value of the flour from being tainted.

A POINT OF LAW FOR SELLING-AGENTS.

A POINT of some interest to manufacturers and jobbers generally is involved in a judicial decision recently pronounced at St. Paul, Minn., in a case appealed from a lower court. M. J. O'Brien sold goods for the Colchester Rubber Co. under an agreement that he should receive as his compensation a percentage on all orders taken, sent in and accepted, and also that he should be notified in case of the manufacturers' refusal to accept any of the orders sent in. It was held by the lower court, where O'Brien brought an action to recover certain percentages, that acceptance of the orders might be inferred from the fact that the defendant had received and retained them, without objection or notification that they had been rejected. This verdict was sustained on the appeal.

A NEW RUBBER IN THE PARA MARKET.

TO THE EDITOR OF THE INDIA RUBBER WORLD: It may be of interest to your readers to know that the first shipment of India-rubber ever made from the Diamantina district of the state of Matto Grosso to Pará arrived here early in the present month. It was received by B. A. Antunes & Co., and comprised 450 kilograms. The rubber was of excellent quality, being equal to that produced in Itaituba, which, although somewhat inferior to Madeira rubber, is superior to that of the river Purús. Pará rubber-merchants would like to see the trade in this product developed for the reason that, coming from beyond the boundaries of the state of Pará, it has no state or municipal taxes (duties) to pay in Pará, and the taxes which must be paid in Matto Grosso are comparatively light. The advantage of this lighter taxation to the merchant handling rubber will be apparent. By the way, the vexed boundary disputes between the states of Pará and Matto Grosso appear in a fair way to be settled.

GRAO PARA.

Pará, Brazil, March 24, 1895.

[ARTICLES in relation to the grade of rubber above referred to were published in THE INDIA RUBBER WORLD of January 15, 1894 (page 110), and July 15, 1894 (page 111). This rubber can be sent to Pará via the rivers Sao Manoel, Tapajos, and Amazon.—THE EDITOR.]

CURING INDIA RUBBER IN MOLTEN METAL.

TO THE EDITOR OF THE INDIA RUBBER WORLD: Can you tell me whether melted metal has ever been used as a bath for curing rubbers? G. R. P.

Boston, Mass., April 15, 1895.

[AS far back as 1867 an English patent was granted to Frank Ryding, where molten metal was used for vulcanizing. The specifications called for a metal or for an alloy that would melt easily to the consistency of butter. The idea was to immerse the molds for curing rubber or vulcanite in this and then effect a cure. There is no report that this process was followed to any extent and it is more than probable that it was simply an interesting experiment.—THE EDITOR.]

EAST AFRICAN RUBBER AGAIN.

TO THE EDITOR OF THE INDIA RUBBER WORLD: After reading the May number of your esteemed publication, in partial reply to the notes by the editor on India-rubber, I will say that I fully confirm my letter of April 16, which you published. From my standpoint I do not believe in discussing the trade prospects of East Africa, in minute details, in any publication. I merely pointed out some facts, which seemed enough for parties who would like to investigate the matter closer. What I have stated in my letter above referred to rests on personal experience and presence in Africa.

In quoting India-rubber exports from Zanzibar for the years 1891 and 1893 you will find that your figures refer to the port of Zanzibar only. They certainly do not include the larger rubber exports from the opposite mainland in the German "sphere," as that rubber is shipped directly from the ports on the coast.

To attribute the failure of the British Imperial East Africa Co. to disappointments in the rubber trade must make anybody smile who is familiar with the past activity of that concern. It was a failure from the start, the well-known rubber districts of East Africa being entirely out of their provinces. Any concern, no matter how favorable the conditions may be for it, would be a failure under similar management. A purely commercial enterprise needs a commercial head to manage it; otherwise it cannot prosper. Africa trotters, sportsmen, explorers and political schemers when engaged in African enterprises have usually run their concerns aground in a few years.

Regarding the mentioned ivory output from the Kongo region, I am not interested enough to correct your statement, but I will say that the statistics of an ivory firm before me, that has been exclusively engaged in the ivory trade in Africa for the last forty years or more, are different. CHARLES J. ZINGG.

Farmington, Me., May 21, 1895.

FRENCH WOOL GREASE AND RUBBER.

TO THE EDITOR OF THE INDIA RUBBER WORLD: I send you sample of what is known as French wool grease. It has been sent to us by parties soliciting our orders, with the information that it is largely used in the manufacture of bicycle tires. Can you give us information regarding this?

TIRE MANUFACTURER.

April 20, 1895.

[THE sample under ordinary examination has the appearance of Russia salve, and as far as we can learn none of the American manufacturers are at the present time using it. Indeed, as our correspondent remarks in another letter, the grease does not seem to be anything that a tire manufacturer would be likely to use. We submitted the sample to the well-known rubber chemist, Percy Carter Bell, F. I. C., F. C. S., and have in hand his certificate of analysis. After giving in detail his tests, he says: "I find from these characteristic tests that the sample is an impure Cholesterin. Cholesterin possesses the property of absorbing more than 100 per cent. of water, a point of great therapeutic moment. Such grease is now therefore being purified in quantity, and the manufactured product, which is termed

'Lanoline,' is used as a basis for ointments, etc. The grease does not contain rubber or any allied substances in its composition; for the reason that it is entirely soluble in Acetone, whereas rubber or any allied substances are insoluble. From the result of the experiments it is evident that the sample contains no other ingredient that is not natural to wool grease. During my connection with the rubber industry both here and abroad, I have never known Cholesterin in any form being used by the rubber trade. In certain classes of rubber stock, various kinds of petroleum products, as vaseline, mineral oils, etc.. are used, to soften the goods and to allay a too rapid deterioration. Cholesterin is entirely different in its composition to the petroleum products, in fact it is a monad alcohol, and is therefore more amenable to exterior influences of vulcanization and oxidation. At the present moment it is questionable whether such a chemical substance is beneficial in enhancing the commercial value of rubber goods and until more is known of its chemical behavior towards rubber and its compounds, great care should be exercised in its uses."—THE EDITOR.]

THIRDS IN RUBBER BOOTS AND SHOES.

TO THE EDITOR OF THE INDIA RUBBER WORLD: Can you give us the address of any company making thirds in rubber boots and shoes? Can you also give us the address of the Liberty Rubber Shoe Co., organized in New Jersey some time since?

MILLER BROTHERS.

Galveston, Texas, April, 1895.

[THERE is no concern that we know of that makes thirds in rubber boots. The National India Rubber Co., Providence, R. I., are the only ones manufacturing thirds in shoes. The address of the Liberty Rubber Shoe Co. is No. 81 Reade street, New York.—THE EDITOR.]

CYLINDRICAL RUBBER SPRINGS.

TO THE EDITOR OF THE INDIA RUBBER WORLD: Can you give me a formula that will give the deflection under a certain load, diameter and length given for cylindrical rubber springs?

OSCAR HAMMAR,
Asst. Eng. H. C. Frick Coke Co.

Scottdale, Pa., April 15, 1895.

[THE only published tests that we know of are those to be found in the United States Ordnance Reports for the year ending June 30, 1884. On page 497 of those reports under the heading "Compression of Rubber Springs" may be found at least a part of the information desired. The tests by the way were made at the Watertown Arsenal, Watertown, Mass., and the springs were $6'' \times 6'' \times 1''$ and were sold to the government for 60c. a pound.—THE EDITOR.]

BLACK RUBBER SUBSTITUTE.

TO THE EDITOR OF THE INDIA RUBBER WORLD: Can you give me a formula for making a black rubber substitute?

F. V. M.

New York, April 27, 1895.

[A VERY old one is 14 lbs. cotton seed oil, 14 lbs. of linseed oil, 8 lbs. asphaltum, 8 lbs. coal tar, 10 lbs. sulphur, ½ lb. camphor. The tar and asphaltum are first mixed with the cotton-seed oil in a boiler, the linseed oil is then added. The sulphur is put in when the temperature is about 270° F. This is put in gradually and as it combines with the other substances the temperature is raised to 310° to 331° F.—THE EDITOR.]

INTERESTED IN RUBBER PLANTING.

TO THE EDITOR OF THE INDIA RUBBER WORLD: Will you have the kindness to answer the following questions. How does the price of crude India-rubber compare to-day with the price paid for it five years ago? Is it higher or lower? In your opinion will the price of it advance or decrease in the course of the next five or ten years? Is there any likelihood of a substitute for rubber being discovered? Several of us are about to engage in the cultivation of the India-rubber tree in Mexico provided we have reasonable assurance that the price of rubber will remain as high as now for five or six years.

FRED LUDWIG.

Alamo, California, June, 1895.

[THE price of crude India-rubber is constantly appreciating for the reason that its uses increase more rapidly than does its production. This is not due to a lack of rubber trees but more to the scarcity of the proper kind of labor. Regarding a substitute for rubber being discovered; that is something that no man can prophecy about accurately. Up to the present time, however, nothing has been produced that has in any way interfered with the sales of crude rubber. There is no likelihood of a permanent drop in price for India-rubber for many years to come as far as we can see.—THE EDITOR.]

TO CULTIVATE RUBBER IN AFRICA.

TO THE EDITOR OF THE INDIA RUBBER WORLD: I would like to correspond with any parties who might be inclined to help open up plantations in Central Africa for the production of rubber from the vine. My nearly seven years' travel there leads me to believe that a great future awaits a company of this kind. To be sure it would take four to six years to get it started, but meanwhile buying could be done. I believe that enough could be raised by one firm there on eight or ten sections of forest land to supply the whole American trade at its present rate of consumption, and perhaps be produced at a much less price than is now paid for it.

J. H. CAMP.

Lima, Ohio, July 1, 1895.

THE DIME MUSEUM AND THE INDIA RUBBER MAN.

THE comic papers have more to say about the Rubber Man than perhaps the exponent of any other trade in existence For example, *Puck* comes out with a little squib like the following:

Bearded Lady—"Some people are so ungrateful for the favors of nature!"

Snake Charmer—"What's the matter now?"

Bearded Lady—"Didn't you hear the India-Rubber man when it began to rain kicking because he'd forgotten his umbrella?"

A week or two later *Life* perpetrates another one at the expense of the same long suffering individual.

The Human Elephant—"Say, the India-Rubber Man got full last night."

The Double Headed Man—"What did they do to him?"

The Human Elephant—"Bounced him."

Not to be outdone *Puck* again comes to the front with another which reads thus:

Living Skeleton—"Why do you object to sitting next to the India-Rubber Man?"

Obese Lady—"Well I know these long hours are tiresome, but, he had such an offensive way of stretching when he yawned that I just couldn't stand it any longer."

Then dignified *Judge* taking the cue has its fling.

Dime Museum Employé—"Somebody has put lead pencil marks all over the walls in the freak department."

Manager—"Well you tell the India-Rubber Man to erase them."

Perhaps it is not our business to take up the cudgels in favor of this much abused personage but we would like to inquire if it is not time that they began to try their wit on the hardware man, the man milliner or the leather man.

ADELBERT H. ALDEN.

MR. A. H. ALDEN, the subject of this sketch, is the oldest son of Mr. George A. Alden, of Boston, the well-known millionaire founder of the New York Commercial Co. Mr. Alden was born in Boston, May 8th, 1857. He graduated from that most select institution for the sons of wealthy parents, Chauncy Hall School, where he took a high standing in his classes as well as in military drill, and at his graduation was Captain of one of the school companies. It was the wish of his parents that he take a University course but he showed such a marked preference for business life that he was allowed to follow his own bent and so entered the firm of Geo. A. Alden & Co. He had been there but a short time when it became necessary to send a man to Europe to settle a very important transaction. Young Alden asked to be allowed to take the matter in hand and his request being granted, he went to England and Germany and settled the matter so brilliantly that he not only left a wonderfully good impression there but on his return was made a partner with his father. From that time on he was the Senior Alden's right hand man and was wonderfully successful in everything he undertook. About five years ago he went to New York to assume the management of the New York Commercial Co., Limited, of which he was vice-president, which company was succeeded by the New York Commercial Co. It was while there that he formulated and was foremost in carrying through the formation of the United States Rubber Co. In spite of his pronounced business tastes and his devotion to his large business interests Mr. Alden has always taken time for relaxation. He is fond of athletic sports and while in Boston was a member of the Hingham Polo Club, Country Club, the Algonquin and other well-known clubs. Since moving to New York he is an active member of the Rockaway Polo Club, the Rockaway Hunt Club and of late has become a most enthusiastic golfer. He was married in October, 1879, to Miss Mabel C. Thayer daughter of Mr. Charles E. Thayer of Boston, and has one son. He is a lineal descendant of John Alden and Priscilla Molines, both of whom came over in the *Mayflower*. Mr. Alden is known as a man of rare executive ability and is a good judge of chararacter. He is a man of modest tastes and exceedingly popular with the many who know him.

ADELBERT H. ALDEN.

A. H. ALDEN IN CONTROL.

At the meeting of the directors of the New York Commercial Co. held June 11, it was learned that Mr. A. H. Alden had purchased the stock recently held by Charles R. Flint which gives him control of the company. This news was followed by the resignation of W. B. Flint, treasurer, and A. De Bruys, secretary, and their resignation also from the board of directors. The officers elected to succeed them were A. H. Alden, treasurer; A. W. Stedman, secretary; Wm. A. DeLong, second vice president; P. de Lacy Liebermann, Asst. Treas. The present board of directors are George A. Alden, Prest.; A. H. Alden, Vice-Prest. and Treas.; W. A. De Long, 2d Vice-Prest.; A. W. Stedman, Secy.; R. D. Evans, Col. S. P. Colt, H. L. Hotchkiss. The company have their own houses in various parts of the world, namely, Adelbert H. Alden in Pará and Manáos, Brazil; Alden, Symington & Co., London; Symington, Bussweiler & Co., Liverpool; Geo. A. Alden & Co., Boston.

A RUBBER that is to-day on the market and commands a high price is what is known as Strictly Prime Accra Strip. A year or two ago the rubber that came from Accra was sticky and one of the most inferior of the African gums. A company, however, said to be German in origin, went down there and with certain machinery so manipulated this gum that to day it is one of the best in the market, and so good that it is used in stationer's bands. Exactly what the process is that it goes through no one seems to know but it appears to have been put in a press after coagulation and the excess of moisture thoroughly pressed out. It is very strong and dry, the only fault about it, being a peculiar smell that no other rubber has.

Garden or Lawn Hose.

TO KEEP the grass green, the lawn beautiful, the garden thrifty, to lay the dust and cool the air, your customers will soon call upon you for Lawn and Garden Hose. Have you a stock to supply early buyers? We can furnish you with hose that will not burst, will not leak, will not sweat, that will please your customers, keep them pleased, and increase your business. From the different brands enumerated below, we can meet your views as to price and quality.

"1846 Para."—A half century of good service stands behind this hose. It is recognized as the very best in the market, being made from the finest Para rubber and cotton duck woven specially for us. Hundreds of testimonials from the trade and public place its excellence beyond dispute.

"Double Diamond."—A strong, durable hose, warranted to give entire satisfaction. It is carefully constructed of excellent stock, and there is nothing better offered, 1846 Para excepted.

"Carbon."—This brand will render entirely satisfactory service. It is constructed in a superior manner, and gives greater value for the price than any offered by other makers.

"Double Diamond" Cotton Hose.—The fabric of this hose is circular woven, of a heavy and high grade of yarn, and is so pliable that it can be bent or twisted without injury. It is exceedingly strong, will withstand 500 lbs. pressure, and we can safely warrant it not to burst under the pressure of any system of water works. Every length is tested, and if hung up and allowed to dry after use, it will render good service for years.

"Spider" Cotton Hose.—This is of precisely the same weave as the Double Diamond, and while of lighter fabric, will withstand ordinary water pressure and render reasonable service.

"Spider."—Our cheapest quality; is several grades higher than the best competition hose in the market.

NEW YORK BELTING & PACKING CO. LTD

PIONEERS AND LEADERS. NEW YORK CITY.

Goods are best. Prices are right.

Cinderella's Slipper

NEVER LOOKED ANY MORE DAINTY THAN THIS POINTED TOE SHOE COVERED BY OUR NEW NEEDLE TOE "LINDEN." MAKE IT EVEN MORE POINTED AND THE "LINDEN" FITS IT.

THE "LINDEN" IS A "RUBBER" THAT REVEALS THE BEST LINES OF A WELL SHAPED POINTED TOE LEATHER SHOE. —It is a Lady's Shoe Glove.

TOO POINTED?

WE MAKE THEM WIDER, BUT THE "LINDEN" IS THE LATEST STYLE IN A NEEDLE TOE "RUBBER."

Boston Rubber Shoe Company,

MAKERS OF

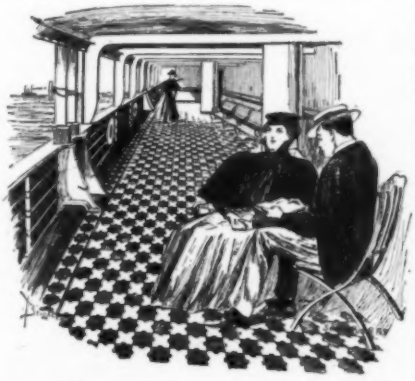
"Rubbers" with many attractive points.

NEW GOODS AND SPECIALTIES.

A NEW type of tire that perhaps ought not to be called a pneumatic, although there is an air cushion in it, is being shown now in Boston. The tire itself is about the size of the ordinary pneumatic and is made of two shells of thin steel. These shells overlap each other where the spokes go through, while on the tread they are slightly separated. A rubber tread covers the surface of the tire that comes in contact with the pavement, the bead entering the space between the two shells. The resiliency of the tire depends altogether upon the spring in the two steel shells. On exceedingly smooth roads there is no question but the plan is a practical one, but whether it will develop the speed on rough surfaces which is such a valuable feature of the rubber pneumatic, is still a question.

THE NEW RUBBER TILING.

FOR floor covering it is probable that no such beautiful effects have ever before been secured as the new interlocking tiling gives. The illustration shows very well one pattern that either in black or white or tan and white makes a very handsome combination. The pattern shown is the one in use in the Broad street Station of the Penn. R. R. in Philadelphia, and from the beginning has attracted the most favorable attention. This tiling was described at length in the last issue of THE INDIA RUBBER WORLD. It is manufactured by the New York Belting and Packing Co., Ltd., New York.



RICE'S WATERPROOF BELT CAPE.

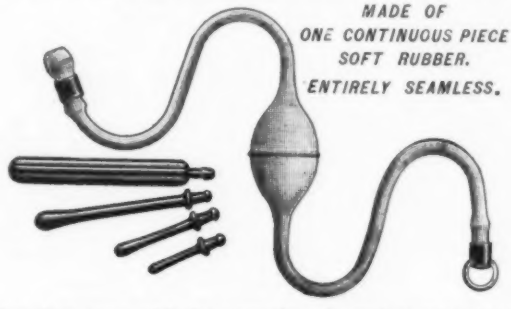
THIS light rubber cape is designed particularly for bicyclists and tourists and has been found to be a most effective protection to the rider in case of a sudden shower. It is very easily put on and when not in use can be folded in a small compass and strapped to the frame or handle bar, or it may be worn as a belt. The cape not only protects the rider but in a measure covers the machine, a point of equal importance. It weighs but 11½ ounces and is made of the very best light gossamer stock. It is patented by Col. Edmund Rice of the United States Army and has already been used to a certain extent in the Cavalry service. The sole agents for the United States are Wm. Read & Sons, 107 Washington street, Boston, Mass.

VACATION SPORTING BOOTS.

AT this time of the year an increasingly large clientage are interested in wading and sporting boots. The type of boot shown in the accompanying illustration is one of special excellence as while it is made of the best stock and exceedingly durable, it is also very compact and portable. The second illustration shows the boot rolled up by which means it can be packed in a trunk or valise, taking up but little room or can be easily carried in a shawl strap. Manufactured by the Wales-Goodyear Shoe Co., 116 Bedford street, Boston.

THE RIVERSIDE SEAMLESS SYRINGE NO. 1.

THIS instrument is meeting with a large sale of which it is worthy. It is exceedingly simple in construction, is easy and quick to operate and possesses all the advantages of the ordinary intermittent bulb syringe. A point of excellence about it is its simplicity and handsome appearance. It is made of a fine white rubber, the tubes being made integral with the bulb, in other words the whole is one continuous piece of soft rubber.

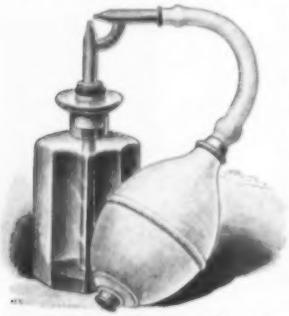


It thus does away with the necessity of metal or other kinds of connections between the bulb and tubing as in the ordinary syringe. At each end of the tubing are special patent valves which for activity and sensitiveness leave nothing to be desired. By the use of these valves the back flow of fecalized fluids is absolutely prevented. A new and ingenious device guards against the loss of any part of these valves the whole being fixed in a mounting of very neat design. The hard rubber pipes, vaginal, rectal, infant and corrugated irrigator are made

with slip-jointed ends which are inserted into a stiffened soft rubber socket thus making a positive and perfect joint and preventing all leakage. The hard rubber valve sinker is fitted with nickel plated brass ring by which the syringe may be hung up and dried more thoroughly. Manufactured by Riverside Rubber Co., Belleville, N. J.

AN ANTISEPTIC ATOMIZER.

THIS article, although not absolutely new is a very neat and serviceable type of atomizer, and one that is sold largely the country over. In this the tubes are entirely made of glass, and any liquid can be sprayed, as there is not the slightest danger of its being brought into contact with either metal or rubber, nor is there any danger of the formation of any impure substances in the tubes. Manufactured by Whitall, Tatum & Co., 46 Barclay street, New York.



THE ENGLISH SPREADER AMERICANIZED.

THE illustration accompanying this shows a new type of spreader for which a great deal is claimed. It is made entirely of iron and fitted with steam-chests over which the drying is done. It can be run much faster than the old fashioned spreader and far more work can be turned off in the day. It can also coat much lighter and more evenly. The machine, as will be seen, is exceedingly compact, and is so arranged that different blades can be put in for different kinds of work. The

ordinary blade that comes with the machine is reversible thus giving two styles of spreading. This blade by the way, is very hard and is made especially for spreading purposes. The regular type of machine is made to spread goods fifty-two inches wide. Another advantage about this machine is that any number of steam-chests can be added for slow drying work, or if greater speed is desired more steam-chests can be added and the cloth run a great deal faster, The spreader is fitted with a car underneath which carries the cloth from end to end. Manufactured by Scott & Myers, Campello, Mass.

THE HARTFORD SINGLE-TUBE TIRE.

THE single-tube or hose pipe tire has never had as large a sale as during this season, and indeed there are those who prophecy that in spite of all the ingenuity put upon inner tube tires, and their remarkable success, that the single tube in the long run is going to be *the* tire. The point that the manufacturers of the tire shown in the illustration make is the ease with which it is repaired. A piece of tire tape will enable one to reach home after a puncture, and sometimes even a bit of

chewing gum or a postage stamp has kept the tire tight until one could get to a convenient place for repairing. Permanent repairs for ordinary punctures can be made by means of the simple repairing outfit shown in the illustration, and this too without removing the tire from the rim. To do this the puncture is enlarged by means of the pliers or by a hot wire, one of the patch plugs is covered with cement and pushed through the hole and the tire at once inflated. When the cement has dried the plug is cut off even with the outer surface, and the tire will be found to be perfectly tight. Both tire and repairing outfit are manufactured by the Hartford Rubber Works, Hartford, Conn.

A PNEUMATIC BILLIARD CUSHION.

AN invention that promises to be of value is a pneumatic billiard cushion made of rubber. This cushion is said to be far ahead of the solid rubber cushion or the popular electric cushion. By varying the amount of air in the chamber the cushion can be made of any degree of elasticity, and any player can be suited.

HARD RUBBER SCALE PAN.

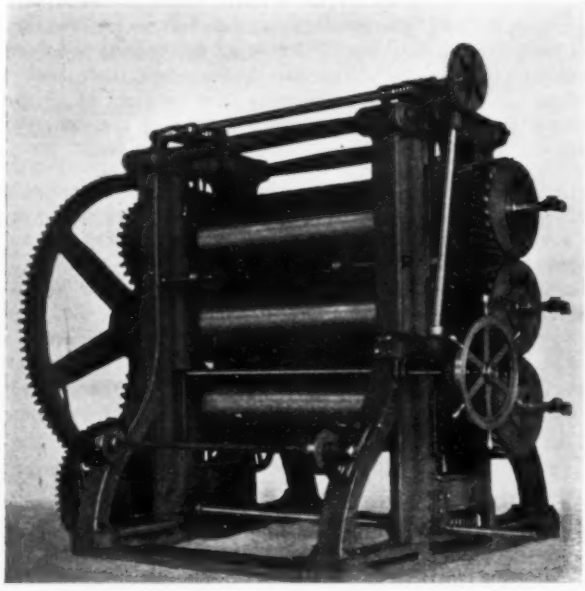
A HARD rubber scale pan is something so simple and yet something so desirable that the wonder is it has never until now been manufactured. Druggists will find that it is less expensive than many pans now in use, and that it has many other virtues to recommend it. Manufactured by Fox, Fultz & Co., 18 Blackstone street, Boston.

THE LATEST IMPROVED CALENDER.

A CALENDER which has all the latest improvements and is designed especially for accurate work, and further, that is easily accessible in case of repairs being necessary, is shown in the accompanying illustration.

One of the novel features of it is in the construction of the roll bearing boxes. Heretofore all boxes have been made with

the flange on the inner end next to the roll, to keep it in place. If the bearing became worn and it became necessary to get the box out to replace the brass lining, it necessitated blocking the rolls up, taking all the gears off from one end, and sliding the frame bodily away from the rolls so that the box would come out. This meant a great deal of work, and not all rubber mills have the appliances needed for doing it. In the new calender, however, the boxes are made without flanges, and on the outside of the frame is bolted a plate to prevent the box from slipping out. Should one wish to get a box out, however, all that is required is to remove the gear next to it, and by unscrewing the bolts in plate box will come out easily. Any one who has had to take out a box from a calender will appreciate how much of an advantage can be gained from this form of construction. Further points that make this type of machine valuable are: The top and bottom screws operate by cut worm gears, worms and clutches, as is usual. The rolls are provided with very large journals to prevent springing as far as possible. The boxes are all brass lined. The adjusting screws are arranged with a steel plate recessed into the cast iron boxes so as to reduce the wear to a minimum. The wind-up bar is



driven from the rolls by a train of gearing, thus doing away with the breaking of chains, etc. The whole calender is made very much heavier than is usual, and no effort has been made to save a few pounds of metal at the expense of the machine. The designers have now under construction two calenders of this design, with rolls 24" diameter and 60" face, with extra large journals, and designed to prevent the trouble which has heretofore been caused by the rolls springing.

Sharp competition has made the rubber men call for machinery designed to run faster and having greater capacity than before. This demand has, we think, been met in this calender, and we understand that in several places where it has been installed it has given satisfaction from the start. It is designed and built by the Birmingham Iron Foundry, Derby, Conn.

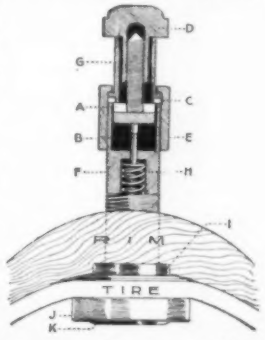
PATENT LINEMEN'S PLIERS.

A PRACTICAL use of rubber is in covering the handles of linemen's pliers thereby insulating them so that live wires can be cut without danger. Beyond that the rubber affords an excellent grip for the hand, and one can bring much more power to bear than when grasping the bare metal. The pliers shownin the accompanying illustration are of a new pattern

and are manufactured by The Peck, Stowe & Wilcox Co., New York.

A NEW FEATURE IN TIRE-VALVES.

THE Palmer pneumatic tire for 1895 is supplied with a valve somewhat reduced in size and embodying some improvements which have been covered by letters patent. The method of attaching the valve to the tire has been modified by interposing a thick washer of soft India-rubber between the metal base of the valve and the inner tube of the tire. The use of this washer precludes the possibility of the inner tube being cut by the base of the valve; and as only a light pressure is necessary to insure an air-tight joint, there is no danger of the fabric being torn by the outer plate. The cut of the valve has been lettered to aid in describing it, the references being as follows: *A* and *C*, rubber washers; *B*, *D*, *E*, and *G*, metal parts; *F*, metal base; *J*, rubber washer, included with *F*; *H*, spring; *I*, set nut and washer. *J* is the soft rubber washer above referred to, interposed between the valve-base *K* and tire, to prevent cutting and give an air-tight joint with light pressure. The valve will fit a $\frac{5}{16}$ inch hole in the rim. The price of the valve complete is 75 cents; the parts may be bought separately. Manufactured by the Palmer Pneumatic Tire Co., Nos. 46-48 Van Buren street, Chicago, Ill.



HALL'S ELASTIC PIPE CLAMP.

AN admirable device just put upon the market is shown in Figure 1. It is known as Hall's Elastic Pipe Clamp, and is used in connection with Hall's Improved Pipe Wrench, recently brought out by the same firm, supplying a long recognized need for a good and reliable tool to work very thin and highly polished pipe or tubing without marring or crushing it.

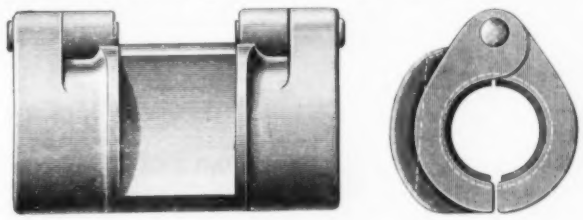


FIGURE 1.

These clamps are made of cast iron, and have an elastic rubber lining, $\frac{1}{8}$ inch thick, which conforms readily to any irregularity in size or shape of pipe and prevents slipping and marring

the pipe when screwing it into place. They grip with so little pressure that the work can be screwed up by hand without using the wrench up to the last one or two turns. When used with the Hall wrench they release their grip by the reverse motion of the wrench, and move with the wrench at the next forward movement, gripping the pipe readily. The wrench need not be removed from the clamps until it has done its work, and the pipe is in place. Users are advised by the manufacturer to always place the wrench on the clamps, with the hinges of the clamps on the bottom of the jaw, and the flat side of the clamp next to the end of the hook, then close the wrench on the clamp and work the handle of the wrench in the opposite direction to gripping a pipe or screwing up a

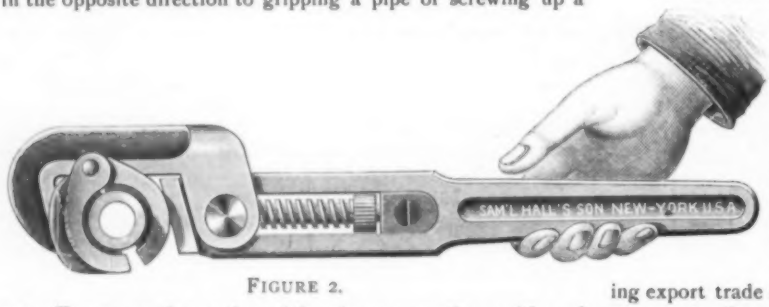


FIGURE 2.

nut. To reverse the motion of the pipe reverse the position of the wrench and clamps on the pipe. The clamp grips the pipe best, when the lower wrench jaw comes in contact with it as shown in the second illustration marked Figure 2.

This clamp is made for all sizes of pipe or tubing within the capacity of the Hall wrench. A finely illustrated brochure containing detail description, price list, etc., of this new tool, is issued by the manufacturer, and may be obtained without cost, upon application. Manufactured by Samuel Hall's Son, No. 229 West 10th street, New York.

RUBBER FLUX BULB.

THIS is an exceedingly handy article for containing and applying liquid flux in all kinds of soldering. The bulb is made of rubber and contains a wick which is always moist and ready at all times to supply acid in any quantity desired. The flow of acid is governed by a gentle pressure on the bulb. A point of special excellence about this bulb is that the acid does not waste as it can lie in any position without spilling a drop. Manufactured by the Boston Woven Hose & Rubber Co., Boston, Mass.

ANOTHER TIRE SUIT DECIDED.

IN the United States circuit court for the district of Indiana the S. F. Heath Cycle Co. (Minneapolis) sued Hay & Willets for alleged infringement of Patent No. 507,224, granted October 24, 1893. The invention relates to means for inflating pneumatic tires for bicycle- and other wheels. The object is to provide a universal air-pump, hose, and couplings, suitable for use on any bicycle. It was claimed by the defense that the invention described in the patent is combination of elements, not patentable, but known in the law as an aggregation; that the devices display no invention; that the devices, in view of the prior state of the art, have been anticipated in all their essential features. In the decision rendered by Judge Baker it is held that "it involved invention to change the form of the choker device . . . . and combine it with an air-pump having a hose with an open end adapted to slip over any bicycle-nipple." The court expressed the opinion that the device "constitutes a patentable invention, and that it had not been anticipated by any prior patented device." The decree was for the complainant.

OUR BOOK AND EXCHANGE TABLE.

THE SHOE AND LEATHER TRADE ANNUAL FOR 1895. NEW YORK: The Shoe and Leather Reporter. [Cloth. 8vo. 711 p. $5.]

EVERY business man who sees this book will be pleased at the evidences which its very looks give of completeness and correctness in its make-up. The introductory matter in relation to export trade, gold and silver, and some other things is instructive. One lesson to be noted is that other branches of industry may secure a constantly-increasing export trade as well as the leather men by intelligent and systematic effort. The greater part of the volume is a directory of the boot-and-shoe men of the United States and the principal cities in some other countries. To the rubber trade this list might prove of interest as showing what becomes of all the rubber shoes. The names in the book are of the men who sell the rubbers, together with leather boots and shoes.

AMONG our new exchanges is *Udyoga*, an illustrated monthly magazine printed in the Maharati language at Nagpur, in the Central Provinces of India. It treats of the sciences,—giving special attention in the first number to electricity,—arts, manufactures, and commercial products. In the absence of our oriental editor it is not possible now to comply with the request of the publishers of *Udyoga*, Messrs. Dixit & Co., for our opinion of their magazine. There are 48 pages, besides the cover, and the price per number is 8 annas. Among the advertisements is one of a local rubber-stamp manufacturer.

INDIA RUBBER MISCELLANY.

THE doctors seem to have agreed that foot dampness is largely responsible for the grip. The use of rubbers of some kind is, therefore, advisable as a partial preventive. It is better to have the feet perspire slightly under a rubber than take the risk of cold, wet feet from the elements and the weather.

* * *

ONE application of India-rubber which has not met with success so far is in the form of pneumatic cushions for typewriter-keys. Some one who thought that ill effects might follow the constant striking of the finger tips upon the hard surfaces of the keys, invented little cushions or pads of soft rubber, with which the keys were capped. None of the typewriter companies has approved of the device, however, and even its manufacturers admit that something is wanting to make it complete. One trouble is that the caps of rubber have soon worked loose from the nickel bands connecting them with the keys.

* * *

THE chimes in the steeple of Grace church, on Broadway, New York, are noted for their sweetness and fullness. A writer in the *Evening Post* says that "the framework supporting the chime rests upon rubber, which gives an elastic vivacity to the sound."

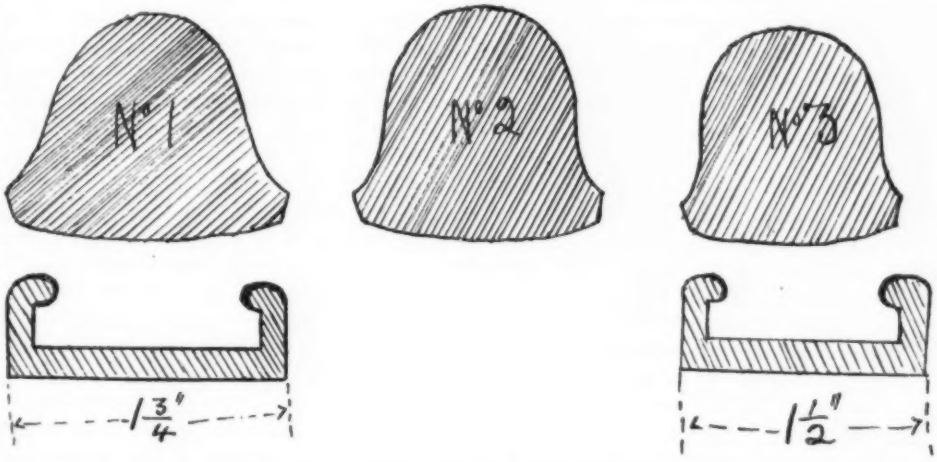
CARRIAGE-WHEEL TIRES IN ENGLAND.

By Joseph Thos. Wicks, Manchester.

INDIA-RUBBER tires for the wheels of carriages and cabs, have been used in England for many years, but sparingly owing partly to defective designs. First we had tires square in section with an ebonite base; these were sent to the carriage-builder who attached them to the felly with side flanges. Then followed dove-tailed tires, with flat tread and ebonite base, held on by side flanges, fitting into the ebonite dove-tails, and bolted to the felly. These dove-tailed tires were moulded in segments, about two feet long or any length. This segmental arrangement allowed any defective piece to be replaced.

Carmont's patent of 1881, and his improvement of 1883, are still in use. The shape of the rubber has received several modifications, but Carmont's idea,—that is, a rubber tire held in a rolled-steel channel in a state of compression,—has not yet been superseded.

These compression tires were perfected in design and wearing qualities after several years of experiments. The tires did not take with the general public, until a wealthy company (The Shrewsbury and Talbot Cab and Noiseless Tire Co., Limited) took hold of them and fitted them to their new hansom cabs in London. London, being paved with asphalt, and the outlying streets with wood, the traffic being light, is the home of the solid rubber compression tire. Asphalt has many advantages; it is (1) level, (2) clean, (3) free from grit, and (4) the traction for horses is easy. Altogether it is certainly the best of roads for India-rubber tires. There are to-day in London approximately 10,000 cabs and private carriages which are fitted with these tires. Cabs, generally, use sections No. 1 and No. 2 with 1¾-inch steel channel. Broughams and other private carriages use No. 3 with 1½-inch steel channel. The sections shown are drawn full size.



A pair of tires, on a hansom, with two relays of horses, lasts from four to six months, in London, the former period being satisfactory. The most approved quality, for cabs, weigh sixteen ounces per lineal foot.

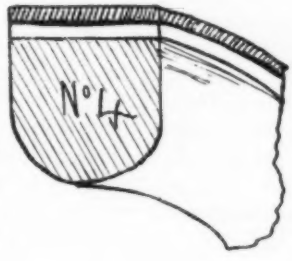
Great efforts have been made to introduce the solid tire into provincial towns, but without good results, owing (1) to unsuitable roads (2) to mud-throwing (3) to greater traction for the horse and (4) to more work for the driver.

Take Manchester, for an example, with the heaviest traffic, paved with granite setts, and enjoying abundant rains. Here where the cabs are heavily built, weighing 11 to 12 cwts. rubber tires are seldom used, and from a cab-driver's point of view they possess several disadvantages. He will tell the inquirer that the horse is compelled to do more work, the rubber tire not rolling so readily as a solid steel tire; that when driving in outlying districts over macadam roads the rubber tire is cut to pieces; on wet days rubber tires throw the mud over cab and horse, so that the driver is compelled to clean down after each fare. The latter appears to be a most serious objection, since the driver cannot afford the time.

Manchester cab-drivers speak well of Challiner's latest patent (No. 10,819), which involves a strip of tough elastic red rubber placed between the felly and the outside steel tire, as shown in section No. 4. The rubber strip forms a cushion, and this arrangement allows the steel tire to roll easily over the inequalities of the road, preventing mud-throwing, reduces considerably the wear of the wheels and of the carriage-body, and saves labor of both beast and man. This tire may be suitable for provincial towns.

Pneumatic tires for carriage-wheels have been tested, but without good results. The Manchester Tramways Co. ran a cab for six weeks. The tires were then punctured and repaired, after which they ran another four weeks; but this life is far too short to be profitable.

At the present time India-rubber manufacturers know of no material,—not even ⅜ or ½ inch rubber tread supported by two plies of 32-ounce cotton duck,—which will stand this hard wear and tear. The weight carried is excessive for rubber in pneumatic-tire design, more particularly on rough uneven surfaces, as



roadways, under a series of long continued blows of 18 to 20 cwts. each.

With pneumatic tires on carriage-wheels the evil of mud-throwing appears in its worst form and is the cause of loud complaint from the coachmen.

A Glasgow firm fitted pneumatic tires to an omnibus. The tires were similar in construction to a piece of belting, six or more plies of cloth, bent arch-shape and bolted to felly, protected with iron flanges, and inflated by a solid rubber tube which was $\frac{1}{32}$ thick in the wall. This omnibus ran five or six days over granite setts, without giving the expected results. The load may be taken at four tons; and the persons who made this £100 trial expected too much. Consider the effect of these heavily loaded pneumatic tires striking against the sharp edge of a displaced granite sett.

Many experiments are going forward, which attract public notice, and indirectly lead to the investigation of the merits of solid rubber tires, for which description there is likely to be a great and increasing demand.

THE QUESTION OF TIRE GUARANTEES.

By Hawthorne Hill.

TIME has not in the least abated the annoyances to the India-rubber trade growing out of the practice of guaranteeing bicycle-tires. On the contrary, the evil—for evil it is—increases in exact proportions with the bicycle trade itself, and the production of wheels in the United States this year is expected to exceed that of all previous years combined. Mr. John Lurie, a member of the bicycle trade, writing in THE INDIA RUBBER WORLD in April last, suggested that "the best way to get rid of the trouble about guarantees is to turn out good tires," reasoning that as tires were made better, there would be fewer complaints. But this principle, sound as it may appear, has not held good. While no one familiar with the subject will fail to admit that the manufacture of bicycle-tires has been carried nearer to perfection in 1895 than ever before—advancing hand in hand with the improvement of the bicycle as a whole—yet the subject of tire-guarantees in valves is as serious a problem as ever.

It is a sound principle of business that when goods are sold they should be as represented, in default of which the buyer should have redress against the seller. This principle is of world-wide recognition,—it is the dictate of common honesty,—without which there could be no safety in commercial transactions. When a new article is introduced in commerce it is not unusual for venders to emphasize this principle in some special form of guarantee, in order to encourage buyers, and so it was when the air-tube was offered as a substitute for the solid India-rubber tire previously in use on bicycles. Naturally people were suspicious of the delicate elastic tubes, easily punctured and worthless when deflated. Doubtless the author of the first tire-guarantee thought himself a shrewd business man, for the mere offer of the guarantee was evidence of his honesty and of his faith in the utility of the pneumatic tire. But his memory is execrated to-day by the makers of millions of tires. Not that the trade has grown less honest, or less confident of the reliability of India-rubber for the purpose indicated. But the complaint is that the guarantee has been abused, and that the peculiar conditions of the trade are such that neither can the guarantee be restricted nor its abuse be checked.

Originally the rubber-manufacturer's warrant was given to the bicycle-maker, in which case the rubber-man had to deal with comparatively few persons in making good his guarantees. But the growth of competition in this field led in time to modified conditions, until now every buyer of a bicycle looks directly to the rubber-man to guarantee the tire against defects in material and workmanship, the bicycle-manufacturer being absolved from responsibility on this score. The result is that the rubber-men are confronted by the whole army of bicyclists, every one of whom seems to feel free to demand reparation whenever the condition of his tires becomes unsatisfactory, regardless of the cause.

A certain rubber-manufacturer, who had sold under guarantee a quantity of belting, received in time from the jobber a claim for defects in the goods, which was resisted in the courts on the ground that the belting was put to a use for which it was unsuited. A verdict was rendered for the manufacturer, based upon the judge's charge to the jury that a manufacturer, even if he broadly guarantees his product, must be presumed to intend nothing more than to warrant satisfactory working under proper and usual conditions. But the manufacturer of bicycle-tires cannot resort to the courts every time a demand is made upon him by an individual buyer for a new pair, under his guarantee. Often he feels impelled, by "business policy," to smilingly deliver the new tires without charge, though inwardly chafing at being imposed upon—however honest the customer may be—by being placed in a position where the latter is at once judge, jury, and sheriff's officer, while the manufacturer is wholly without voice. While the making of pneumatic tires was still in an experimental stage, the manufacturers now and then discovered errors in their methods, and in at least one important instance a firm advertised an offer to replace every one of their tires then in use with one of improved construction. It cannot be gainsaid that throughout the policy of the tire-manufacturers has been more than liberal. Indeed, it is a question whether their too great liberality has not been the cause in part of the present condition of which they silently complain,—for most of their complaints are made behind the closed doors of their private offices.

With most articles in wide use the public rapidly becomes informed in regard to their merits and the proper means of caring for them. But it is probable that to-day there is more ignorance of rubber-tires among wheelmen than ever before, for the reason such a great increase has

recently taken place in the number of wheels in use. The bicycle being a machine, it does not occur to the average rider that the India-rubber air-tube is almost as delicate an organism as a part of the human body, and that satisfactory results depend upon intelligent care. Consequently the effects of hard riding, or insufficient inflation, or improper alignment of the machine (causing the tires to rub), or careless adjustment of the valve to the rim, and even ordinary punctures, are all charged up to "defects in material and workmanship," and the manufacturer is expected to supply a new set of tires, or at least to mend the old

What else is the manufacturer to do? Correspondence in relation to a tire which he is certain has been injured through sheer carelessness is often most unsatisfactory to all concerned. The wheelman is not always well enough acquainted with his tire to understand the ordinary descriptive terms used by the manufacturer in explaining his position, and, having decided for himself that he is entitled to a new pair, he concludes that every objection urged by the manufacturer is only a subterfuge to evade the plain terms of his guarantee. But it is not the individual complainant alone who is to be kept in mind. It is quite possible that in his club, or his village, or his circle of acquaintance, his influence may be such that to incur his ill-will will result in damage to the reputation of the tire, and "business policy," as before mentioned, impels the manufacturer, in opposition to his sense of justice to himself, to ship a new pair of tires and conceal his annoyance. The case is complicated sometimes, when the demand for replacement comes through a bicycle-manufacturer, with the plea that unless new tires are furnished, the reputation of his own wheel will suffer,—and, as he is a large buyer of this particular brand of tires, won't the rubber-man, as a special favor to him, replace the tires? Throughout the whole range of the business the consideration is uppermost that, whether an individual wheelman, a jobber in wheels, or a manufacturer of wheels is involved, there are other tire-makers in the field, with tires possibly as good as his own and as cheap, and that a very small pretext may be sufficient to turn away his trade to a competitor. It is small wonder, then, that the rubber-man feels that, as an individual, he is powerless to assert himself in an attempt to check the results of the guarantee system, not even when, as sometimes happens, he is convinced that the claim for replacement comes from a man who is conscious of the dishonesty of his claim, but who is willing to resort to deceit rather than pay cash for new tires. There have been cases where tires plainly worn out by long usage have been returned as having failed on first trial.

Why don't the tire-makers get together, then, and take measures for self-protection? "Why don't you tell us how to do it?" they doubtless will answer. The guaranteeing question is not a new one in the India-rubber industry; its effects only happen to be worse in the tire branch of the business than they ever were in any other. Unanimity is absolutely necessary for the success of any scheme of concerted action in such a trade as this. So great is the rivalry, so keen the competition, in the rubber business, that, if a few manufacturers decline to sign and abide by any agreement, it is not possible for the rest, even if they be more powerful, to inaugurate any reform for themselves. But should such concerted action be taken to-day by all those now in the business, the probability is that the situation would be disturbed to-morrow by a new arrival in the field. Even as I write these lines the report comes of a competent tire-man who is securing capital to establish a new firm of his own. It would be a taking card for a new firm to parade the fact that the old manufacturers had withdrawn their guarantees, doubtless as a confession of the weakness of their tires, while "the perfect new tire" would be sold under a guarantee. Such a policy could not fail to attract buyers in great numbers. At least such is the fear of some of those now in the trade.

But there is another consideration. The chief difficulty is not in securing signers to any agreement in matters of trade, but in getting the signers to adhere to their agreement. Who ever heard of "a gentlemen's agreement" among railroad presidents as to rates that was not violated by one of the companies before the ink of their signatures was dry? The fact is that there are "weak brothers" in every trade—men whose business is in such a condition that they actually cannot maintain much stiffness in any position, no matter how earnestly they might desire to abide by an agreement.

Finally, the attitude of the rival rubber-manufacturing companies toward each other in the past has not been such as to render easy any concerted action among them at this time. There is no channel through which even a suggestion can be made for such a movement, for instance, as the restriction of tire-guarantees, without its seeming to be a confession of weakness on the part of the author. Naturally nobody wants to stand before the trade in this attitude. Then, as every firm could not predominate in any given combination, and as no one wants to be in the background, the difficulty of securing unity of action is additionally heightened.

It appears, then, that while the tire-manufacturers each recognizes and deplores the objectionable features of the guarantee system, they individually concede their inability to throw off the burden, or even to offer a practical suggestion toward that end. If they can stand it, other people can. It is not probable that any outsider will come forward with a solution of their difficulty. Yet it is difficult to see any good reason why the people in this trade should not discuss the guarantee system, from an impersonal standpoint, just as the St. Louis Farm Implement and Vehicle Association some time ago discussed guarantees on vehicles. What reason is there, in fact, why there should not be in this country such an organization as the French "Syndicat Professionel des Caoutchouc, Gutta-percha, etc.," which, since 1863, has embraced well-nigh the whole rubber trade of France? On crossing the threshold of their "chambre" the members of the "syndicat" leave behind all spirit of competition, though outside its walls it is probable that every one of them is as careful to look after "number one" as are the manufacturers of America. But it ought not to be necessary to go through

all this work of organization for our rubber-men to get down to business on the single subject of tire-guarantees. There does not exist on the globe a stronger spirit of rivalry than that among the daily newspapers of New York, and yet their publishers easily got together several years ago to stop the ruinous competition in the price of their Sunday issues, and the price they then agreed upon—five cents—has been maintained ever since.

I am not yet ready to believe that the rubber-manufacturing trade, as a whole, is not powerful enough to resist any injustice in the demands upon it for the replacement of bicycle-tires.

UNITED STATES RUBBER COMPANY.

THE June trading in the stocks of the United States Rubber Co. on the New York Stock Exchange was heavier than for any previous month in the history of the company. On a single day—June 28—the sales reported amounted to 21,425 shares. In connection with this heavy trading there was a decline in the prices of common from 46, at the beginning of the month to 37¼ near the close, though a quotation as high as 48 was reached during the first week. The transactions since the first of the year have been :

DATES.	COMMON.			PREFERRED.		
	Sales.	High.	Low.	Sales.	High.	Low.
January.....	13,296	45	39¾	2,152	94⅜	91
February.....	9,075	44	39¾	1,784	94½	92½
March.....	10,667	41½	37⅜	4,984	94⅜	93¼
April	22,595	41⅝	39	8,416	94½	93
May.....	78,411	47¼	40	11,758	97	93¾
June.....	111,158	48	37¼	8,257	98	91⅝

A semi-annual dividend of 4 per cent. on the preferred stock of the company was declared at a meeting of the directors held on June 19, payable July 15 to stockholders of record at the closing of the transfer books at the close of business on June 25. The amount thus distributed is to be $786,020.

During the latter part of June a notice was posted on the New York Stock Exchange to the effect that the United States Rubber Co. had not complied with the regulation of the Exchange requiring reports of the business of a corporation as a condition of the listing of its stocks. An official of the company was quoted by the newspapers as saying that, since the company had never received a request for any report upon their business, it was not known that any regulation of the Stock Exchange had been neglected. On July 2 a report was submitted to the Stock Exchange, prepared by Auditor Bragg, of the rubber company, and THE INDIA RUBBER WORLD was informed at the Exchange that the report would be considered by the stock-list committee on July 8. At the close of a meeting of the committee on the date named it was announced that the matter had not been taken up because no officer of the United States Rubber Co. had appeared before the committee.

* * *

The news that Mr. Robert D. Evans had been elected General Manager of the U. S. Rubber Co. was not altogether unexpected, and in this connection it is interesting to briefly review Mr. Evans' connection with the rubber trade. In November, 1891, THE INDIA RUBBER WORLD published it at length. Mr. Evans was born in Boston, and after graduating from the public schools went into the Hall Rubber Co. as a boy. Later he was with C. M. Clapp, with whom he remained until the breaking out of the civil war, when he enlisted in the Army of the Potomac. On his return, he became a partner of C. M. Clapp's and manufactured goods in the factory of the Ætna Rubber Mills, Jamaica Plain, Mass. There he made carriage cloth, wringer rolls, and various surface goods, and gained a familiarity with general rubber manufacturing that stood him in good stead in later years. The partnership between himself and Mr. Clapp having been dissolved, he formed the Eagle Rubber Co., and later merged the Eagle and American Rubber Companies together. In 1887 the works of the American Rubber Co. at Cambridgeport were burned, and Mr. Evans suffered the severest financial loss of his life. He, however, pluckily started anew, and built so well that at the time the American entered the United States Rubber Co. it had a capital and surplus of $2,500,000. At the formation of the United States Rubber Co. Mr. Evans was elected president. He is known to be one of the best executives in the rubber business, and it is probable that no other company in its line of late years, has been more uniformly prosperous or made larger returns on the capital invested. It is interesting in reviewing this early sketch of Mr. Evans' life and his entrance into the United States Rubber Co. to repeat what he then said regarding foreign trade. He said : "We ought to have a much larger foreign trade than we now have. At present we get it in a hap-hazard way. I think if one mill were to devote its attention to styles that were adapted for foreign markets and to do nothing else a fine business could be brought about."

OIL FROM RUBBER-TREE SEEDS.

A SUGGESTION of a new source of income from the India-rubber tree is contained in a pamphlet by Senhor da Cunha, recently published by the state government of Pará. According to this author it is probable that before many years elapse an important trade will be developed in the seeds of the rubber-tree, which are very abundant and yield an important quantity of oil which is said to compare favorably with linseed oil. Up to the present time this oil has been extracted only in small quantities, but with the more systematic regulation of the rubber industry which the author predicts, it is expected that the rubber-tree seed will be included among the valuable resources of the country.

If it is, indeed, true that such oil can be made from the seeds of the rubber tree, and one that is similar to linseed oil, it may be that from this will be produced the ideal rubber substitute. It is a well-known fact that the nearest approaches to a substitute for India-rubber have been made from linseed and kindred oils, and perhaps the oil of the rubber seeds will be exactly what the trade have so long been looking for.

OBITUARY.

FERDINAND COOK, paymaster for the Woonsocket Rubber Co., died on June 16, at Woonsocket, R. I., of apoplexy. He was born at Cumberland Hill on June 29, 1840, was educated at Woonsocket, and devoted twenty years to the jewelry trade in New York. In 1883 he was engaged as head clerk at the Millville plant of the Woonsocket Rubber Co. After a few years' service in that capacity he was promoted to the position of paymaster at the company's Woonsocket and Millville plants, handling a weekly payroll of over 2500 names. He had been in failing health for four years. He quit work last April, but did not take to his bed until about a week before his death. He was a twin brother of Frederick C. Cook, of Providence, treasurer of the company. Twenty-three years ago he married Miss Christine Enger, of New York, who survives him, together with a son, Frederick H. Cook.

HEARD AND SEEN IN THE TRADE.

"THE advance in prices which one hears of in some other lines of trade has not extended to mechanical rubber goods," said a manufacturer in that line. "Our prices are no higher, and give no promise of being higher, although we are now paying considerably more for raw material than some time ago. We are paying more for cotton duck, and everybody knows how crude India-rubber has gone up during the year. It is not a good time for a single house to advance prices, for, while there is a good trade so far as volume is concerned, there is yet a great deal of idle machinery in the mechanical-goods trade, and certain companies would be glad to take orders at a very slight margin of profit in order to keep moving. Whoever puts up prices now will soon be left out of the market. Rubber belting has not been affected any by the advance in leather. In fact, the new prices of leather have not been maintained throughout, on account of a few firms having failed to sign the agreement."

* * *

IT has been an excellent season for garden-hose. The season opened with exceptionally small stocks everywhere and a steady stream of orders has been the result. There seems to be a feeling that there is to be a good deal of genuine summer weather this year, but it is never so hot or so dry as to make the garden-hose manufacturer complain.

* * *

THE tire-makers say that it is too early in the season for them to determine accurately the merits of the light tires put out this year. It will be remembered that the great decrease in weight was not started by the rubber-men, but resulted from the demands of the bicycle-manufacturers.

"I would not like to go on record yet," said a very large manufacturer, "but I am inclined to think that a mistake has been made in lightening the tires so much. I think that the lighter tires, owing to the constant improvements in manufacture, are as strong as the heavier tires of past seasons under proper use, but they have to be carefully handled. I think, too, that it has been a mistake to reduce the diameter of the tires, in the interest of lightness and supposed neater appearance. The smaller tires hard pumped are certainly lacking in resiliency, and are therefore less comfortable for riding."

"The lighter tires have worked well in the detachable type," said another manufacturer, "but as for the hose pipe style I feel that the lighter they are made, the better it will be for the trade in detachable tires. Naturally the liability to puncture increases with the decrease in weight of the hose-pipe tire, and it is'nt always easy to locate the puncture in tires of that class."

* * *

A REPRESENTATIVE of the Pneumatic Tyre Co., Limited (Dublin), who was on this side the Atlantic lately, reported a growing trade in Dunlop-Welch tires for carriages. The American Dunlop Tire Co. (New York), on the other hand, report that they are too busy with their bicycle trade to devote any attention to vehicle-tires further than filling such orders as reach them unsolicited. President Harvey du Cros, Jr., of the latter company, and Kirk Brown, general manager, are in Europe, where they expect to remain for some time. They attended the annual meeting of directors of the Dublin company on June 26.

* * *

THE unsettled condition of the leather-shoe market, due to the advance all around in leather, has not been without its effect upon the demand for rubbers for next season's trade. The problem has been whether to buy leather shoes of the usual quality at a higher figure, or to pay the former prices and have the manufacturer take something "out of the shoe." Many retailers are disposed to postpone their orders for rubber footwear until they know how they stand with regard to leather, which forms the greater part of their stocks. On the other hand, the fact that an advance in rubbers is slated for October 1 has been a means of encouraging promptness in the placing of orders. Altogether, therefore, the selling-agents and jobbers have a busy season to report. These, by the way, are doing their work more quietly than in former years, since the disappearance of price cutting on rubbers. Now that everybody knows what rubbers are to cost, the points to be looked after are what styles does the dealer want, and how many cases of goods.

* * *

A REPORT by the Boston Rubber Shoe Co. to the state commissioner of corporations in Massachusetts, for the year ending June 14, contains some figures which make far from dry reading. For instance how does "Capital, $5,000,000" and "Debts, none," strike you? Here is the official showing:

Capital	$5,000,000	Plant	$ 805,000
Debts	None	Cash	2,188,247
Reserves	200,000	Material and Stock	2,606,132
Profit and Loss	1,750,000	Miscellaneous	15,000
Total	$6,950,000	Total	$5,612.379

During two years past the Boston Rubber Shoe Co. have built an important addition to their plant at Melrose, redistributed stock to shareholders of record amounting to $2,000,000, and in addition cleared nearly $300,000 in cash. It is not slang to remark that these two years haven't been very good for business either.

* * *

THIS showing has been quoted as proof that there is money in the manufacture of rubber shoes, and as a reason for wonder that the common stock of the United States Rubber Co. has not reached a higher figure. But the quotations for this stock are made by outsiders, who have as yet slight data for judging of the condition of the industry, and who have been rendered cautious by the history of some other leading industrial stocks. The failure of the United States Rubber Co. to declare a dividend this summer on their common stock has tended to prevent prices from rising, though doubtless they are pursuing a good business policy in attempting to create a healthy cash reserve.

* * *

THERE was an impression, in certain quarters, that the dissolution of the Rubber Reclaiming Co. would be followed by an advance in the price of scrap rubber, due to the increased number of buyers after each of the constituent companies should begin business on its own account. As a matter of fact, there was active competition in buying for a short time, until the different companies, some of whom were without stocks, accumulated enough for their immediate demands, when a decline set in which is still in progress. There is no sound reason for a permanent advance from any such cause as that above mentioned. The total demand for scrap is in no way affected by the action of the Rubber Reclaiming Co., while the supply is as large as ever. The consumption of scrap rubber constantly

increases, but it is the opinion of a large dealer that the supply has never yet been fully drawn upon. He says that there has never been so great a demand for scrap but that it could be supplied, every additional cent in the price having the effect of drawing old rubber from quarters not regularly contributing to the market. In some parts of the country the collection by peddlers of rags and other paper-stock has declined, owing to the present low price of such materials, and the scrap rubber formerly collected through the same channels no longer comes to market except in a period of high prices.

* * *

MR. RUDOLPH ZEITZ, of the Pará rubber market, spent several days lately with his friends in the New York trade, sailing on July 2, on the *Havel*, for Europe. THE MAN ABOUT TOWN.

NEW TRADE PUBLICATIONS.

NO single treatise hitherto published on the India-rubber industry gives an insight into such a variety of uses of this important material as does the new "Descriptive Catalogue and Price-List of the New York Belting and Packing Co., Limited,"—a bound octavo volume of 100 pages. THE INDIA RUBBER WORLD has more than once noted the growing value of the trade catalogues of manufacturers as a part of the industrial and scientific literature of the day, and it seems likely that these are to take the place largely of regulation books, such as issue through the publishing-houses in relation to many branches of industry. In addition to itemizing so many of the uses to which India-rubber is put, as illustrated in the products of this important house, the catalogue before us contains not a little information on methods of manufacture, in which respect it marks a wide difference from the former policy of manufacturers to keep secret all facts of this kind.

This catalogue is introduced with some notes on the history of the New York Belting and Packing Co., Limited, with illustrations and descriptions of their three factories. Some account of their trade-marks follows, after which comes the department of "Rubber Belting," to which thirteen pages are devoted. There is an account of the manufacture of rubber belting in general, followed by detailed descriptions of the belting manufactured by the company for grain-elevator use, threshing-machines, paper-mills, etc., price-lists of rubber and leather belting, and information of value on the use and care of belts, rules for calculating speed of pulleys, rules for calculating horse-power, how to splice belts, and other similar matter.

Twenty-four pages are devoted to rubber hose, with an account of its manufacture; steam-hose, which is an important product of this company, occupies three pages, with valuable tables and lists; one page is giving to air-brake hose, two to fire-hose, four to cotton-hose and the "leatherite" treatment of the same; three to suction-hose, besides which there are hose-reels, nozzles, and other appliances; seventeen pages are devoted to mats and matting, including the company's new patented rubber tiling; eight pages are given to packing, gaskets, and tubing, and six pages to emery-wheels. Considerable space is devoted to "Specialties," of which a large variety are illustrated, together with remarks on vulcanization and mold-work. Bicycle-tires are briefly disposed of, as a separate pamphlet has been published on this subject. Finally a well-arranged double index, new and convenient in arrangement, giving the pages of both the lists and descriptions of articles, completes the book. It can be said of the engravings that they are both useful and attractive in appearance.

* * *

THE Peerless Rubber Manufacturing Co. (New York) have issued a catalogue of their mechanical rubber goods which fills 72 good-sized pages, embraced within flexible leatherette covers. The classification of matter is good, prices are given of all the goods described, and illustrations are used liberally. In illustrating the labels used to designate some of their popular lines the representation is complete, even to the coloring of the labels. Special attention is called to the durability of their products, it being noted that some of their rubber fire-engine hose has been in constant use by the city of New York for more than eight years, without showing any signs of giving out. Some of their goods, including air-brake hose for railways, and steam-hose for car-heating connections, have labels marked with the date of manufacture. The trade-mark on their "Westinghouse" air-brake-hose is owned and controlled by the Westinghouse Air Brake Co. (Pittsburgh). In addition to their rubber belting, they are now prepared to fill orders for leather belting, and useful hints are given on the use of the two kinds of belting. Thirteen pages of attractive matter are devoted to rubber mats and matting, of which the Peerless company are extensive manufacturers. There are listed a number of specialties in rubber for which there is no space in this notice.

* * *

THE frequency with which the Boston Belting Co. bring out new catalogues, as well as the extent and variety of the matter which they contain, bears witness to the constant progress made in the India-rubber industry. The fact that it is thought worth while by Manager Forsyth to protect the contents of these catalogues by copyright is an indication—borne out by an inspection of them—of originality, completeness, and careful preparation. Thus their "Railroad Edition," as one of the new catalogues before us is entitled, contains not only a list of the various types of hose and other rubber goods manufactured for railway use, together with prices, but also calculations of value to railway engineers, purchasing-agents, and others who have to handle these goods. It is stated that over 1,250,000 feet of their car-heating hose and more than 5,000,000 feet of their air-brake hose have been sold to railway companies in the United States. This catalogue ends with a list of twenty-three cities where the Boston Belting Co. have sales-rooms. The catalogue bears the date of June, 1895.

The second catalogue received from this company embraces rubber mats and matting and stair-treads, and contains fourteen illustrations of attractive designs. Among the practical suggestions to buyers of mats is one to the effect that "letters show to better advantage on a smooth surface, while a corrugated surface is better for cleaning the feet." It is suggested also that small mats—say not over six feet square—are preferable to larger ones on account of being lighter and more easily handled and less liable to be broken or otherwise damaged in handling.

* * *

SAGE & CO. (Boston) have a conveniently arranged price-list of the rubber boots and shoes which they keep in stock, including the Woonsocket, American, Colchester, "Rhode Island," "Empire," "New London," "Imperial," and Marvel brands. Under each item in the whole list, beginning with "Men's pure gum short boots," are given the prices for each manufacturer represented. The catalogue is rendered additionally complete by the introduction of a second column of prices, showing what retailers will have to pay for goods after October 1.

TRADE AND PERSONAL NOTES.

IN the list of officers of the United States Rubber Co. last year the name of Joseph Banigan was followed by the titles "president and general-manager," with George Watkinson assistant general-manager. At a recent meeting of the directors of the company Robert D. Evans, first vice-president, was made general-manager.

—At the annual meeting of the Boston Rubber Shoe Co., on June 14, Lester Leland was elected to the office of treasurer, so long held by the Hon. E. S. Converse. The latter continues to hold the office of president, in which he succeeded his brother, the late James W. Converse, holding both offices until lately. Lester Leland, who is President Converse's son-in-law, had been for some time past assistant-treasurer. Capt. Harry E. Converse has become general-manager of the company.

—There have been still further changes and improvements in the arrangement of the offices of the United States Rubber Co., in Reade street, New York. E. H. Paine, the company's selling-agent, has a well-appointed office on the first floor, fronting on Reade street, adjoining which is a spacious sample-room for displaying the products of the company.

—The Hon. E. S. Converse arrived at home from his extended visit to Europe and Asia in time to be present at the dedication of the new home for nurses and training-school, which form an adjunct to the hospital at Malden, Mass. The cost of the building, $16,000, was jointly borne by Mr. Converse and A. H. Davenport.

—Since the death of E. B. Preston, shortly after his appointment as western agent of the United States Rubber Co., the selling of their brands has remained in the hands of the former Chicago agents of the various constituent companies. An exception to this is the agency of the Meyer and Jersey rubber companies, the selling-agency of which has been divided between R. H. Griffin for the western states and John H. Clark for the east. Both of these gentlemen have their offices in Reade street, New York, making trips into their respective territories as required. The stock of goods of the Meyer and Jersey companies in Chicago is in charge of C. B. Allen (Nos. 267-269 Franklin street), the representative of the Woonsocket Rubber Co.

—The former business of E. B. Preston & Co. in St. Joseph, Mo., will be continued by a new corporation under the style of the McCord Rubber Co., with $50,000 capital. The incorporators are James McCord, Samuel S. McCord, James H. McCord, and Henry A. Walker, all of St. Joseph, and John L. Peterman, of Chicago.

—The directors of the Glendale Elastic Fabrics Co. (Easthampton, Mass.) on June 18 reëlected S. T. Seelye president and J. W. Green, Jr., clerk and treasurer. The time for holding the annual meeting was changed to the last Wednesday in January. The business outlook of the company is reported good.

—Mr. Joseph Banigan, with his family, are spending the summer at Newport, in the same house occupied by them last year. Mr. Banigan is mentioned as having purchased lately the Jones-Dyer block, in Westminster street, Providence, R. I., with the idea of improving it.

—Mr. Rhodes Lockwood, President, and Mr. W. N. Lockwood, Treasurer, of the Davidson Rubber Co. (Boston) are now at their summer home in Lexington, Mass.

—Mr. Walter S. Ballou, sales agent of the Woonsocket Rubber Co., is part owner of a river in Long Island, N. Y., where at one season of the year are caught the best sea trout, and at another quantities of striped bass.

—One of the interesting features of the war between Japan and China was an order for a peculiar Japanese rubber shoe, which the National India Rubber Co. secured.

—The Boston Woven Hose Co. are having a great call for a new type of tire which they call the "Vim."

—Mr. A. H. Alden, Vice President and Treasurer of the New York Commercial Co. is the donor of what is known as the Alden Polo Cup, the contestants for which are the first and second teams of the Rockaway Hunt Club.

—A recent visitor to New York and Boston was Mr. Henry Werner of the firm of Henry Werner & Co. of Detroit, Mich. Mr. Werner has plans already drawn for a very large and imposing building, which will give him a better opportunity to market his well known mackintoshes and waterproof goods of the Stag brand.

—Coupons due on July 1 on the 6-per-cent. mortgage debenture bonds of the New York Belting and Packing Co., Limited, were advertised to be payable on and after that date at the offices of the Knickerbocker Trust Co., in New York.

—The latest new yacht-owner in the rubber trade is J. Howard Ford, president of the Meyer Rubber Co., who has bought the "95-footer" *Thistle*. William B. Banigan is getting not a little enjoyment for himself and his friends out of a new steam-launch on Narragansett Bay. Capt. Harry E. Converse recently treated the office and store house forces of the Boston Rubber Shoe Co. to an excursion on his yacht *Calypso*.

—The factory building for the new Conant Rubber Co. (South Framingham, Mass.) is rapidly nearing completion in the hands of A. Fales & Sons, the contractors. Machinery is put in place and an early date for starting is probable.

—The Newton Rubber Works, Newton Upper Falls, Mass., have added to their plant a building 30×80 feet and are said to be turning out five hundred pairs of tires a day.

—The owners of the Hudson Hose Mender report that their sales this season have been larger than the combined sales of any two previous years. The new brass tube which they use is far more popular than the iron tube, as it is lighter, stronger, and gives a larger water-way.

—Spinney, Virtue & Co., Lynn, Mass., will put upon the market next season two types of pneumatic tires. They have been preparing these for some time, and are going to make an effort to have the best tires going.

—On account of the rush of work at the Woonsocket Rubber Co.'s "Alice" mill, the employés were warned recently not to leave work to see a circus parade, and eighteen of them who disregarded the notice were discharged.

—The Philadelphia Rubber Works (N. Chapman Mitchell's company) are planning an additional office building at Twenty-fifth and South streets.

—The Apsley Rubber Co. (Hudson, Mass.) have granted the request of their employés for a half-holiday on Saturdays during July and August. The employés gave President L. D. Apsley a formal welcome at his residence on the evening of June 17, on his return from Europe.

—The Ætna Rubber Mills, Jamaica Plain, Mass., owned by Mr. C. M. Clapp, have been sold to a progressive builder in that town and it is rumored that he is to tear down part of the buildings and erect tenement houses on the land.

—The Boston Rubber Shoe Co. run a complete printing office in one of their large factories, and the amount of printed matter that they turn out in the way of work tickets, etc., would almost equal what the small daily papers issue.

—The Hope Rubber Co., Providence, have just secured an order for 5000 feet of fire-hose for one of the prosperous Rhode Island towns.

—The Conant Rubber Co. who for some time have had a retail store on Summer street, Boston, have given up retailing and will devote themselves to the manufacture and wholesaling of mackintosh garments, their headquarters being at South Framingham and at their store in Hartford, Conn.

—The Mechanical Mfg. Co., 146 Franklin street, Boston, have bought Alfred Hale's patents on air mattresses made of rubber, and have already taken several large contracts for supplying these goods.

—A recent Benedict is Mr. Wilbur N. Shelton of the Franklin Rubber Co. (Boston), who was lately married to Miss Helen G. Jordan of Hartford, Conn.

—Mr. J. O. Stokes, treasurer Home Rubber Co. (Trenton), has established his family at Belmar, one of the delightful watering places on the Jersey coast.

—Prescott Bros., Cornhill, Boston, report that their hose season has been unprecedentedly large. With that and their wringer business they have been so busy that they have been obliged to work nights.

—The Commonwealth Rubber Co., 2 Astor House, New York, have sold quantities of bicycles this season. A recent order for one customer was for one hundred and fifty wheels.

—A new product that is interesting rubber men, is a white recovered rubber which is manufactured by a concern in Boston.

—A recent number of THE INDIA RUBBER WORLD mentioned a belt manufactured by the Boston Belting Co. that had endured twenty-seven years' continuous work. The statement that it was run in Philadelphia was an error, as it was made for Chickering & Sons of Boston, the pianoforte manufacturers.

—The Victor Rubber Tire Co. is a new concern just established in Springfield, Ohio. Its officers are Mr. Frank Torrence, president, Mr. Theodore Blosser, vice-president, Mr. R. F. Housten, secretary and treasurer. They are to manufacture the Victor Vehicle Tire invented by Mr. Blosser, which tire is said to be very practical and has already found many friends.

—The steamer *St. Louis*, mentioned in the last number of THE INDIA RUBBER WORLD, as being fitted with the new and beautiful rubber tiling, was also fitted with six hundred rubber mattresses which were manufactured by the Mechanical Mfg. Co., 146 Franklin street, Boston. The steamer *St. Paul*, it is said, is to be fitted with as many more by the same manufacturers.

—The striped bass of Brook Haven, Long Island, had a very hard time of it on the glorious Fourth. Messrs. E. H. Paine, selling agent of the United States Rubber Co., Walter S. Ballou, of the Woonsocket Rubber Co., and W. H. Wilson, of Brown & Wilson, the Beekman street printers, all members of the Carman's River Fishing Club, spent the Fourth at Brook Haven landing striped bass. Mr. Paine made the first and largest catch, though the others pushed him hard for honors. After fishing, they returned to Mr. Wilson's charming summer home at Patchogue, Long Island.

—Mr. W. H. Smith, of the firm of Pickands, Brown & Co., and Mr. F. A. Seib, of the Chicago branch of the Boston Woven Hose & Rubber Co., have formed a copartnership under the firm name of Smith, Seib & Co., with offices at 30 La Salle street, Chicago, where they will do a commission business in mechanical rubber goods.

—E. H. Paine, of the United States Rubber Co., with his family, has become a resident of New York, being domiciled at the "Marie Antoinette," on West Sixty-sixth street.

—American rubber men who have been in the habit of calling on the well-known house of Typke & King, London, will do well to remember that they have removed to their new city offices at 7 Jeffreys square, St. Mary Axe, London, E. C. Their representative in the United States, by the way, is Mr. Joseph Cantor, Kemble building, Whitehall street, New York.

—The Mechanical Rubber Co. (New York) have announced, through August Belmont, treasurer, that the coupons due on July 1 on their first-mortgage gold bonds were payable on and after that date at the offices of the Knickerbocker Trust Co., No. 66 Broadway.

—The Columbia Rubber Works Co. (New York) have lately removed their store and offices from No. 65 Reade street across the way to No. 66, where Manager l'Hommedieu and his staff are more comfortably installed than formerly, with more room at their disposal.

—The New York Tire Co. have taken out a license to manufacture the Tillinghast pneumatic tire. Mr. P. W. Tillinghast has become connected with the company, having retired from the Tillinghast Manufacturing Co. (Providence, R. I.)

—Hon. L. D. Apsley on his return from Europe called the employés of his Hudson factory together, and gave to each of the men a pocket knife which he purchased in Cologne, and to the women a hand worked Brussels lace handkerchief. It took two hundred and seventy-five presents to do this, and that the employés appreciated his thoughtfulness is stating it very mildly.

—The *Boston Herald* is out with a half column editorial asking why American manufacturers do not make golf balls, and thus get them to the players at less prices than the imported goods cost. Evidently the writer is not quite up in what our own manufacturers are doing.

—The B. F. Goodrich Co., Akron, have issued a four-page leaflet on the care of hose which it is well worth any one's time to read, as it gives every-day, practical advice, and such that not only the retailer but the user should be in touch with.

—A Springfield, Mass., paper mourns over the fact that there is no rubber tire that will do for heavy city teams. They are evidently not aware of the fact that Geo. H. Hood of the Boston Rubber Co. has already equipped one of the heaviest draft teams in Boston with a set of his tires that give every promise of solving the problem.

—E. H. Cutler and family are, as usual, spending the summer at Wood's Holl, Mass.

—R. D. Evans and his family are again at Burgess Point, Beverly, Mass., for the summer.

—Mrs. George H. Hood—wife of the president of the Boston Rubber Co.—and the two Misses Hood sailed on June 8 to spend the summer in England and Wales.

—The engagement has been announced of Frank D. Balderston, of the National India Rubber Co., to Miss Clara, daughter of George P. Banchor, of Boston.

—The Hon. Frank A. Magowan, the Trenton rubber-manufacturer, is reported to carry $250,000 of life insurance. In a list of heavily-insured citizens of New York and neighboring towns, printed in the New York *Herald*, only seven have policies for a larger sum than Mr. Magowan. Chauncey M. Depew heads the list with $500,000.

—Charles R. Flint, treasurer of the United States Rubber Co., sailed from New York on the *Lucania* on June 15, for a vacation in Europe.

—The works of the Meyer Rubber Co. (Milltown, N. J.) were closed during the latter part of June to permit of the substitution of steel for the iron gearing in the machinery, in the hope that there will be less danger from breakdowns in future.

REVIEW OF THE INDIA-RUBBER MARKET.

AT the moment of going to press the market for Pará rubber may best be described as dull and weak, the indications which we quoted a month ago having failed to materialize in a strengthened condition of the market. Throughout the month of June the demand for Pará grades was poor both in the United States and in England. Since July 1 the English price for fine Pará has declined 1 *d.* per pound. In America the weakness of the market has been emphasized by some pressure to sell. These conditions naturally have had an effect upon the market at Pará. Under the circumstances noted it is somewhat difficult to compile satisfactorily our usual monthly quotations, since the transactions in many grades have been so slight of late that prices may be said, in most cases, to be merely nominal. In fact there are no sales reported for some grades. It is the impression of the trade, however, that in a few days the position of the market may be materially strengthened, since the manufacturers who have been delaying purchases of crude rubber in the hope of declining prices cannot indefinitely pursue this course.

With respect to Africans, the condition is also dull, but steady. It will be remembered that prices for Africans did not respond, during the past few months, to the advance in Pará grades, and it now appears that they have not declined in company with the prices for Pará rubber.

The statistical position of Pará rubber in New York and elsewhere is as follows, the figures expressing tons of 1000 kilograms:

	Fine and Medium.	Coarse.	Totals.	Totals 1894.
Stock, May 31	331	50	381	= 1248
Arrivals, June	221	164	385	= 403
Aggregating	552	214	766	= 1651
Deliveries, June	260	140	400	= 492
Stock, June 30	292	74	366	= 1159

	1895.	1894.
Stock in England, June 30	1215	1435
Deliveries in England, June	360	490
Pará receipts, June	780	720
Stock in Pará, June 30	220	305
World's supply June 30 (excluding Caucho)	2260	3250
Pará receipts since July 1	19,470	19,660

The latest quotations in the New York market are:

Pará, fine, new t a	71 @72	Benguela	45½@46
Pará, fine, old	77 @80	Kongo Ball	36 @40
Pará, coarse, new t a	46½@55	Cameroon Ball	36 @38
Caucho (Peruvian) strip	46 @47	Flake, Ord. and Lump	23 @24
Caucho (Peruvian) ball	51 @51½	Accra Flake	15 @18
Mangabeira, sheet	39 @42	Liberian Flake	26 @27
Esmeralda, sausage	@53	Primest Pinky Madr	58 @60
Guayaquil, strip	35 @44	Madagascar, black	43 @45
Nicaragua, scrap	51 @53	Borneo	26 @
Nicaragua, sheet	49 @50	Gutta-percha, fine grade	1.30
Thimbles	35 @36	Gutta-percha, medium	1.00
Tongues	35 @37	Gutta-percha, hard white	85
Sierra Leone	25 @42		

Market weak and almost no demand.

PRICES FOR JUNE (ISLAND RUBBER).

	1895. Fine.	1895. Coarse.	1894. Fine.	1894. Coarse.	1893. Fine.	1893. Coarse.
First	73½	49	65	43	74	48
Highest	74	50	66½	45	74	48
Lowest	72	47½	65	42½	67	43
Last	72	47½	66	44½	67	43

In regard to the financial situation Messrs. Simpson & Beers, brokers in crude India-rubber and commercial paper (New York), advise us as follows:

"Since our last report, there has been a great scarcity of all mercantile paper, particularly of India-rubber paper, and all first-class names have been readily taken. Indications point to a very easy money market during the summer months. We qnote: First-class receivables, 3@3½ per cent.; first-class single names, 4½@5½ per cent., all from four to six months to run."

IMPORTS FROM PARA.

THE receipts of India-rubber direct from Pará and Manáos at the port of New York since our last publication are reported in detail below, the figures referring to pounds:

June 14.—By the steamer *Cametense*, from Pará and Manáos:

	Fine.	Medium.	Coarse.	Caucho.	Total.
New York Commercial Co.	20,000	4,600	20,500	112,000	157,100
Lawrence Johnson & Co.	27,100	7,600	27,900	47,400	110,000
Reimers & Meyer	50,100	9,900	38,600	6,600	105,200
Boston Rubber Shoe Co.	17,300	6,000	17,900	5,600	46,800
Shipton Green	3,100	1,100	10,200	.....	14,400
G. C. Cowl	.....	.....	3,600	.....	3,600
P. Lima	900	300	700	.....	1,900
Totals	118,500	29,500	119,400	171,600	439,000

June 17.—By the steamer *Moorish Prince*, from Pará:

Reimers & Meyer	7,000	13,200	6,800	78,900	105,900
Sears & Co.	.....	.....	3,800	.....	3,800
Totals	7,000	13,200	10,600	78,900	109,700

June 25.—By the steamer *Cearense* from Pará:

New York Commercial Co.	19,500	3,200	9,600	4,000	36,300
Reimers & Meyer	17,900	2,500	24,400	.....	44,800
Lawrence Johnson & Co.	3,400	1,200	18,200	2,300	25,100
Shipton Green	2,800	1,200	300	.....	4,300
Totals	43,600	8,100	52,500	6,300	110,500

July 3.—By the steamer *Hildebrand*, from Pará and Manáos:

New York Commercial Co.	33,200	4,200	17,700	30,200	85,300
Reimers & Meyer	6,800	1,400	27,300	6,600	43,100
Kunhardt & Co.	11,700	3,900	.....	.....	15,600
Lawrence Johnson & Co.	1,700	1,600	31,500	.....	34,800
Sears & Co.	300	300	400	.....	1,000
Ahrenfeldt & Son	1,200	.....	12,500	42,500	56,200
Boston Rubber Shoe Co.	11,100	3,900	4,300	500	19,800
G. Amsinck & Co.	.....	600	.....	.....	600
Shipton Green	3,600	2,800	3,900	700	11,000
Totals	70,600	18,700	97,600	80,500	267,400

June Imports from Pará	1,030,100
May Imports	1,651,400
April Imports	2,156,400
March Imports	3,611,700
February Imports	2,274,400
January Imports	2,869,500

OTHER NEW YORK ARRIVALS.

BELOW will be found in detail the imports at New York, during June, 1895, of India-rubber from Mexico, Central America, and South America, other than Pará grades; also, arrivals at New York of African and East Indian sorts:

CENTRALS.

JUNE 1.—By the *Colombia*=Colon:	POUNDS.
A. P. Strout	5,100
J. M. Ceballos & Co.	2,100
Eggers & Heirlein	300
Total	7,500

JUNE 3.—By the *Adirondack*=Cartagena:

D. A. DeLima & Co	8,500
Kunhardt & Co	1,500
Total	10,000

JUNE 3.—By the *Louisiana*=New Orleans:

Earle Brothers	2,000

JUNE 5.—by the *Seneca*=Mexico:

Hughes & Co	1,500
H. Marquardt & Co	500
Total	2,000

JUNE 11.—By the *Alleghany*=Port Limon:

A. N. Rotholz & Co	700
Ellinger & Brothers	300
Total	1,000

JUNE 13.—By the *New Orleans*=New Orleans:

Earle Brothers	13,000
F. H. Robinson	2,500
W. H. Crossman & Bro.	1,000
Total	16,500

JUNE 12. By the *Majestic*=Liverpool:

Windmuller & Roelker	14,500

JUNE 12.—By the *Heredia*=Bahia:

Reimers & Meyer	4,000

JUNE 12.—By the *Seguranca*=Mexico:

Seeger & Guernsey Co	2,000
Hughes & Co.	1,800
Graham, Hinckley & Co	700
J. W. Wilson & Co	500
Total	4,000

JUNE 12.—By the *Alliance*=Colon:

A. Santos & Co	8,363
G. R. Cottrell & Co	3,714
Munoz & Espriella	3,615
Flint, Eddy & Co	3,300
Dumarest & Co.	2,530
New York Commercial Co	2,100
Roldan & Van Sickel	2,100
G. Amsinck & Co	1,196
Piza, Nephews & Co	1,113
A. James & Co	295
Total	28,326

JUNE 12.—By the *Newport*=Colon:

R. F. Cornwell	3,351
J. M. Ceballos & Co	2,272
Munoz & Espriella	1,600
F. Ferro	1,530
Samper & Jutnenez	828
F. Probst & Co	200
Total	9,781

JUNE 18.—By the *Knickerbocker*=New Orleans:

W. H. Crossman & Bros.	8,000
Earle Bros.	4,000
Total	12,000

JUNE 18.—By the *Ailsa*=Cartagena:

Steibel Bros. (London)	3,000
Kunhardt & Co.	2,500
Punderford & Co	2,000
D. A. de Lima & Co.	1,000
Flint, Eddy Co.	1,500
Mecke & Co	700
Lanman & Kemp	500
Total	11,200

JUNE 19.—By the *Yumuri*=Mexico:

H. Marquardt & Co.	1,000
H. W. Peabody & Co	600
E. Steiger & Co.	500
H. A. Forrest & Co	500
Hughes & Co.	300
Total	2,900

JUNE 21.—By the *Advance*=Colon:

Flint, Eddy Co.	5,100
Roldan & Van Sickel	2,147
I. Brandon & Bro	1,526
D. A. de Lima & Co.	1,200
W. R. Grace & Co.	507
Total	10,480

JUNE 22.—By the *City of Para*=Colon:

J. Aparicio & Co	4,168
G. Amsinck & Co.	1,390
Geo. R. Cottrell & Co	852
Flint, Eddy Co.	600
Boyle & Co.	173
Total	7,183

JUNE 22.—By the *Taff*=Cape Gracias:

Eggers & Heinlein	2,000
K. Mandell & Co.	1,500
Total	3,500

JUNE 22.—By the *Palatia*=Hamburg:

George A. Alden & Co	6,000

JUNE 24.—By the *Louisiana*=New Orleans:

W. H. Crossman & Bro	2,000
Earle Bros.	3,000
Total	5,000

JUNE 25.—By the *Wylo*=Greytown:

A. P. Strout	7,000
Munoz & Espriella	2,000
G. Amsinck & Co	2,000
Total	11,000

JUNE 25.—By the *Alene*=Savanilla:

Loudon	1,000
G. Amsinck & Co	800
A. N. Rotholz & Co	700
Total	2,500

JUNE 25.—By the *Cearense*=Maranham:

Shipton Green	300
W. H. Crossman & Bro	900
Total	1,200

JUNE 26.—By the *Yucatan*=Mexico:

Graham, Hinckley & Co	800
J. Menendez & Co	700
H. W. Peabody & Co	200
Total	1,700

JUNE 27.—By the *El Ulas*=New Orleans:

W. H. Crossman & Bro	11,500
F. H. Robinson	5,500
Total	17,000

JUNE 29.—By the *Adriatic*=Liverpool:

Windmuller & Roelker	2,000

Total Centrals for June	194,270
Total for May	317,000
Total for April	168,072
Total for March	290,283
Total for February	239,251
Total for January	341,029

AFRICANS.

JUNE 1.—By the *Umbria*=Liverpool:

	POUNDS.
Reimers & Meyer	15,000

JUNE 3.—By the *Tauric*=Liverpool:

George A. Alden & Co.	11,200

JUNE 7.—By the *Britannic*=Liverpool:

Otto G. Mayer & Co.	1,500

JUNE 7.—By the *Lucania*=Liverpool:

George A. Alden & Co.	32,700
American Wringer Co.	2,000
Total	34,700

JUNE 9.—By the *Cercnum*=Lisbon:

George A. Alden & Co.	31,600

JUNE 11.—By the *Nomadic*=Liverpool:

Reimers & Meyer	25,000

JUNE 13.—By the *Persia*=Hamburg:

Reimers & Meyer	41,600

JUNE 15.—By the *Etruria*=Liverpool:

Reimers & Meyer	26,700

JUNE 15.—By the *Paris*=Southampton:

George A. Alden & Co.	22,400

JUNE 22.—By the *Campania*=Liverpool:

Reimers & Meyer	42,700
Otto G. Mayer & Co	9,000
Total	51,700

JUNE 23.—By the *Veendam*=Rotterdam:

George A. Alden & Co.	2,700

JUNE 28.—By the *Albano*=Hamburg:

George A. Alden & Co.	11,000

JUNE 29.—By the *Umbria*=Liverpool:

George A. Alden & Co	36,100
William A. Brown & Co.	12,000
Total	48,100

Total Africans for June	322,600
Total for May	884,100
Total for April	367,200
Total for March	374,554
Total for February	441,500
Total for January	582,000

EAST INDIAN.

JUNE 2.—By the *Benlarig*=Singapore:

	POUNDS.
Reimers & Meyer	88,000
George A. Alden & Co.	30,000
R. Soltau & Co.	22,000
Total	140,000

JUNE 3.—By the *Berlin*=Southampton:

George A. Alden & Co.	4,500

JUNE 9.—By the *America*=London:

Reimers & Meyer	10,000
George A. Alden & Co	3,200
Total	13,200

JUNE 10.—By the *Mobile*=London:

William A. Brown & Co.	38,000

JUNE 17.—By the *Bovic*=Liverpool:

Reimers & Meyer	7,500
George A. Alden & Co.	3,300
Total	10,800

JUNE 15.—By the *Paris*=Southampton:

Reimers & Meyer	2,600

JUNE 20.—By the *Germanic*=Liverpool:

George A. Alden & Co.	11,000

JUNE 24.—By the *Runic*=Liverpool:

George A. Alden & Co.	6,000

JUNE 25.—By the *Berlin*=Southampton:

George A. Alden & Co.	15,000

Total East Indian for June	241,100
Total for May	118,900
Total for April	451,000
Total for March	487,300
Total for February	110,000
Total for January	28,800

RECAPITULATION.

	POUNDS.
Pará—direct imports	1,030,100
Centrals	194,270
Africans	322,600
East Indian	241,100
Total at New York for June	1,788,070
Total for May	2,971,400
Total for April	3,142,672
Total for March	4,858,383
Total for February	3,080,151
Total for January	4,038,229

BOSTON ARRIVALS.

	POUNDS.
JUNE 7.—By the *Barrowmore*=London: George A. Alden & Co.—East Indian	8,900
JUNE 9.—By the *Norseman*=Liverpool: Reimers & Meyer—Africans	13,000
George A. Alden & Co.—Pará	16,870
JUNE 10.—By the *Pavonia*=Liverpool: George A. Alden & Co.—Africans	5,280
JUNE 11.—By the *Ottoman*=Liverpool: George A. Alden & Co.—Africans	8,370
JUNE 19.—By the *Sachem*=Liverpool: Reimers & Meyer—Africans	32,000
George A. Alden & Co.—Africans	10,500
JUNE 20.—By the *Carlisle City*=Liverpool: George A. Alden & Co.—East Indian (Pontianak)	90,000
Total at Boston for June	185,920
Total for May	129,620
Total for April	138,560
Total for March	106,900
Total for February	127,100
Total for January	243,950

NEW ORLEANS.

MAY.

	POUNDS.	VALUE.
Nicaragua	44,354	$15,856

JUNE.

	POUNDS.	VALUE.
Honduras	450	$ 104
Nicaragua	62,900	21,950
Total	63,350	$22,054